

FCC SAR TEST REPORT

Test File No : F690501/RF-SAR002524-A1

Equipment Under Test	LED View Cover
Model Name	EF-NG965
Applicant	SAMSUNG ELECTRONICS Co., Ltd.
Address of Applicant	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677 Republic of Korea
FCC ID	A3L-EFNG965
Cell Phone FCC ID	A3LSMG965U
Exposure Category	General Population/Uncontrolled Exposure
Standards	FCC 47 CFR Part 2 (2.1093) IEEE 1528, 2013 ANSI/IEEE C95.1, C95.3
Date of Test(s)	2018-03-28 ~2018-04-03
Date of Issue	2018-04-05

In the configuration tested, the EUT complied with the standards specified above.

Remarks:

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS Korea Co., Ltd. or testing done by SGS Korea Co., Ltd. in connection with distribution or use of the product described in this report must be approved by SGS Korea Co., Ltd. in writing.



Report prepared by /
Jongho Park
Test Engineer



Approved by /
Minhyuk Han
Technical Manager

**SGS Korea Co., Ltd.**

4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, 15807

Tel. 031-428-5700 / Fax. 031-427-2371

<http://www.sgsgroup.kr>

Page : 2 / 314

Revision history

Revision	Date of issue	Revisions	Revised By
-	December 29, 2017	Initial issue	-
A1	April 05, 2018	Report Updated - Additional All highest SAR test	Jongho Park

Contents

1	Testing Laboratory_____	6
2	Details of Manufacturer_____	6
3	Description of EUT(s) _____	6
4	Information of Attached Cell Phone_____	6
5	The Highest Reported SAR Values_____	8
6	Test Methodology_____	9
7	Test Environment _____	9
8	Specific Absorption Rate (SAR) _____	10
8.1	Introduction_____	10
8.2	SAR Definition_____	10
8.3	Test Standards and Limits_____	10
9	The SAR Measurement System_____	12
10	System Components_____	13
10.1	Probe_____	13
10.2	SAM Phantom_____	13
10.3	Device Holder_____	14
11	SAR Measurement Procedures_____	15
11.1	Normal SAR Measurement Procedure_____	15
12	SAR System Verification _____	17
13	Tissue Simulant Fluid for the Frequency Band _____	20
14	Instruments List_____	25
15	FCC Power Measurement Procedures_____	26
16	Measured and Reported SAR_____	27
17	Maximum Output Power Specifications_____	28
18	RF Conducted Power Measurement_____	30
19	SAR Data Summary_____	33
19.1	Head SAR data_____	33
19.2	Body SAR data_____	34
19.3	Hotspot SAR data_____	35
19.4	Phablet SAR data_____	36
19.5	Simultaneous Transmission Scenario for Head SAR Worst Case_____	37
19.6	Simultaneous Transmission Scenario for Body Worn SAR Worst Case_____	37
19.7	Simultaneous Transmission Scenario for Hotspot SAR Worst Case_____	38
19.8	Simultaneous Transmission Scenario for Phablet SAR Worst Case_____	38
	Appendixes List_____	39
	Appendixes A.1_____	42
	Appendixes A.2_____	44
	Appendixes A.3_____	46
	Appendixes A.4_____	47
	Appendixes A.5_____	48
	Appendixes A.6_____	49
	Appendixes A.7_____	50
	Appendixes A.8_____	51
	Appendixes A.9_____	52
	Appendixes A.10_____	53
	Appendixes A.11_____	54
	Appendixes A.12_____	55
	Appendixes A.13_____	57
	Appendixes A.14_____	58

Appendixes A.15	59
Appendixes A.16	62
Appendixes A.17	65
Appendixes A.18	66
Appendixes A.19	67
Appendixes A.20	68
Appendixes A.21	69
Appendixes A.22	70
Appendixes A.23	71
Appendixes A.24	72
Appendixes A.25	74
Appendixes A.26	75
Appendixes A.27	76
Appendixes A.28	77
Appendixes A.29	78
Appendixes A.30	79
Appendixes A.31	80
Appendixes A.32	81
Appendixes A.33	82
Appendixes A.34	83
Appendixes A.35	84
Appendixes A.36	85
Appendixes A.37	86
Appendixes A.38	87
Appendixes A.39	88
Appendixes A.40	89
Appendixes A.41	90
Appendixes A.42	91
Appendixes A.43	92
Appendixes A.44	93
Appendixes A.45	94
Appendixes A.46	95
Appendixes A.47	96
Appendixes A.48	97
Appendixes A.49	98
Appendixes A.50	99
Appendixes A.51	100
Appendixes A.52	101
Appendixes A.53	102
Appendixes A.54	103
Appendixes A.55	104
Appendixes A.56	105
Appendixes A.57	106
Appendixes A.58	107
Appendixes A.59	108
Appendixes A.60	109
Appendixes A.61	110
Appendixes A.62	112
Appendixes A.63	113
Appendixes A.64	114
Appendixes A.65	115
Appendixes A.66	116
Appendixes A.67	117
Appendixes A.68	118
Appendixes A.69	119
Appendixes A.70	120



SGS Korea Co., Ltd.

4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, 15807

Tel. 031-428-5700 / Fax. 031-427-2371

<http://www.sgsgroup.kr>

Page : 5 / 314

Appendixes A.71	121
Appendixes A.72	122
Appendixes A.73	123
Appendixes A.74	123
Appendixes A.75	124
Appendixes A.76	125
Appendixes A.77	126
Appendixes A.78	127
Appendixes A.79	128
Appendixes A.80	129
Appendixes A.81	130
Appendixes A.82	131
Appendixes A.83	132
Appendixes A.84	133
Appendixes A.85	134
Appendixes A.86	135
Appendixes A.87	136
Appendixes A.88	137
Appendixes A.89	138
Appendixes A.90	140
Appendixes A.91	141
Appendixes A.92	142
Appendixes A.93	143
Appendixes A.94	144
Appendixes A.95	145
Appendixes A.96	146
Appendixes A.97	147
Appendixes A.98	148
Appendixes B.1	149
Appendixes B.2	236
Appendixes B.3	246
END	314

1 Testing Laboratory

Company Name	SGS Korea Co., Ltd. (Gunpo Laboratory)
Address	Wireless Div. 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, 15807 Republic of Korea
Telephone	+82 +31 428 5700
FAX	+82 +31 427 2371

2 Details of Manufacturer

Applicant	SAMSUNG ELECTRONICS Co., Ltd.
Address	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677 Republic of Korea
Email	j-man.kim@samsung.com
Phone No.	+82-10-4933-6633

3 Description of EUT(s)

EUT Type	LED View Cover
Model Name	EF-NG965
Serial Number	R37JA6QVMQXHB3
Mode of Operation	NFC
Tx Frequency Range	NFC (13.56 MHz)

4 Information of Attached Cell Phone

EUT Type	Portable Handset
Model Name	SM-G965U
Additional Model	SM-G965U1, SM-G965W, SM-G965XU
Serial Number	43424d454d4c3098
Mode of Operation	CDMA/EVDO BC10(\$90S) / CDMA/EVDO BC00(\$22H) /PCS CDMA/EVDO /GSM/GPRS/EDGE850 /GSM/GPRS/EDGE1900 /UMTS 850 /UMTS 1750 /UMTS 1900 /LTE Band 71 /LTE Band 12 /LTE Band 17 /LTE Band 13 /LTE Band 14 /LTE Band 26 /LTE Band 5 /LTE Band 66 /LTE Band 4 /LTE Band 25 /LTE Band 2 /LTE Band 30 /LTE Band 7 /LTE Band 41 /LTE Band 38 /2.4 GHz WLAN /U-NII-1 /U-NII-2A /U-NII-2C /U-NII-3 /Bluetooth /ANT+ /NFC

Tx Frequency Range	CDMA/EVDO BC10(\$90S) : 817.9 ~ 823.1 MHz CDMA/EVDO BC00(\$22H) : 824.70 ~ 848.31 MHz PCS CDMA/EVDO : 1851.25 ~ 1908.75 MHz GSM/GPRS/EDGE850 : 824.2 ~ 848.8 MHz GSM/GPRS/EDGE1900 : 1850.2 ~ 1909.8 MHz UMTS 850 : 826.4 ~ 846.6 MHz UMTS 1750 : 1712.4 ~ 1752.6 MHz UMTS 1900 : 1852.4 ~ 1907.6 MHz LTE Band 71 : 666.5 ~ 695.5 MHz LTE Band 12 : 699.7 ~ 715.3 MHz LTE Band 17 : 706.5 ~ 713.5 MHz LTE Band 13 : 779.5 ~ 784.5 MHz LTE Band 14 : 790.5 ~ 795.5 MHz LTE Band 26 (Cell) : 814.7 ~ 848.3 MHz LTE Band 5 (Cell) : 824.7 ~ 848.3 MHz LTE Band 66 (AWS) : 1710.7 ~ 1779.3 MHz LTE Band 4 (AWS) : 1710.7 ~ 1754.3 MHz LTE Band 25 (PCS) : 1850.7 ~ 1914.3 MHz LTE Band 2 (PCS) : 1850.7 ~ 1909.3 MHz LTE Band 30 : 2307.5 ~ 2312.5 MHz LTE Band 7 : 2502.5 ~ 2567.5 MHz LTE Band 41 : 2498.5 ~ 2687.5 MHz LTE Band 38 : 2672.5 ~ 2617.5 MHz 2.4 GHz WLAN : 2412 ~ 2462 MHz / U-NII-1 : 5180 ~ 5240 MHz U-NII-2A : 5260 ~ 5320 MHz / U-NII-2C : 5500 ~ 5720 MHz U-NII-3 : 5745 ~ 5825 MHz / Bluetooth , ANT+ : 2402 ~ 2408 MHz NFC : 13.56 MHz
--------------------	---

5 The Highest Reported SAR Values

Equipment Class	Band	Highest Reported SAR							
		Head 1g (W/kg)		Body Worn 1g (W/kg)		Hotspot 1g (W/kg)		Phablet 10g (W/kg)	
		Original	+LED Cover	Original	+LED Cover	Original	+LED Cover	Original	+LED Cover
PCE	GSM/GPRS/EDGE850	0.19	0.16	0.26	0.22	0.54	0.31	N/A	N/A
PCE	GSM/GPRS/EDGE1900	0.12	0.08	0.30	0.25	0.37	0.35	1.46	1.31
PCE	UMTS 850	0.23	0.21	0.40	0.30	0.61	0.45	N/A	N/A
PCE	UMTS 1750	0.17	0.13	0.64	0.56	0.41	0.35	2.78	2.34
PCE	UMTS 1900	0.18	0.08	0.58	0.29	0.56	0.52	2.24	1.97
PCE	CDMA/EVDO BC10(\$90S)	0.36	0.28	0.47	0.39	0.83	0.64	N/A	N/A
PCE	CDMA/EVDO BC00(\$22H)	0.31	0.26	0.38	0.35	0.72	0.57	N/A	N/A
PCE	PCS CDMA/EVDO	0.17	0.11	0.70	0.22	0.86	0.50	2.14	2.09
PCE	LTE Band 71	0.13	0.11	0.30	0.23	0.40	0.30	N/A	N/A
PCE	LTE Band 12	0.15	0.14	0.30	0.24	0.40	0.40	N/A	N/A
PCE	LTE Band 17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PCE	LTE Band 13	0.26	0.17	0.34	0.28	0.59	0.37	N/A	N/A
PCE	LTE Band 14	0.28	0.15	0.33	0.27	0.58	0.40	N/A	N/A
PCE	LTE Band 26 (Cell)	0.23	0.20	0.25	0.23	0.67	0.51	N/A	N/A
PCE	LTE Band 5 (Cell)	0.23	0.20	0.29	0.29	0.67	0.52	N/A	N/A
PCE	LTE Band 66 (AWS)	0.20	0.13	0.79	0.72	0.64	0.39	3.17	2.81
PCE	LTE Band 4 (AWS)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PCE	LTE Band 25 (PCS)	0.20	0.09	0.67	0.38	0.78	0.64	3.26	2.22
PCE	LTE Band 2 (PCS)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PCE	LTE Band 30	0.10	0.05	0.37	0.26	0.58	0.57	1.20	1.03
PCE	LTE Band 7	0.12	0.08	0.40	0.31	0.99	0.96	1.42	0.98
PCE	LTE Band 41	0.13	0.05	0.45	0.25	1.04	0.84	3.21	2.48
PCE	LTE Band 38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DTS	2.4 GHz WLAN	0.18	0.12	0.12	0.10	0.38	0.26	N/A	N/A
NII	U-NII-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NII	U-NII-2A	0.28	0.17	0.20	0.20	N/A	N/A	1.45	1.01
NII	U-NII-2C	0.27	0.25	0.38	0.29	N/A	N/A	2.43	1.47
NII	U-NII-3	0.35	0.28	0.26	0.24	0.46	0.32	N/A	N/A
DSS/DTS	Bluetooth	0.78	0.46	< 0.1	0.04	0.10	0.09	N/A	N/A
Simultaneous SAR per KDB 690783 D01v01r03		1.14	0.74	1.48	1.31	1.59	1.30	3.94	2.76

6 Test Methodology

ANSI C95.1-1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. It specifies the maximum exposure limit of 1.6 W/kg as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

Test tests documented in this report were performed in accordance with IEEE Standard 1528-2013 and the following published KDB procedures.

In additions;

☒	KDB 865664 D01v01r04	SAR Measurement Requirements for 100 MHz to 6 GHz
☒	KDB 447498 D01v06	Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies
☐	KDB 447498 D02v02r01	SAR Measurement Procedures for USB Dongle Transmitters
☒	KDB 248227 D01v02r02	SAR Guidance For IEEE 802.11 (Wi-Fi) Transmitters
☐	KDB 615223 D01v01r01	802.16e/WiMax SAR Measurement Guidance
☐	KDB 616217 D04v01r02	SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers
☐	KDB 643646 D01v01r03	SAR Test Reduction Considerations for Occupational PTT Radios
☒	KDB 648474 D03v01r04	Evaluation and Approval Considerations for Handsets with Specific Wireless Charging Battery Covers
☒	KDB 648474 D04v01r03	SAR Evaluation Considerations for Wireless Handsets
☐	KDB 680106 D01v02	RF Exposure Considerations for Low Power Consumer Wireless Power Transfer Applications
☒	KDB 941225 D01v03r01	3G SAR Measurement Procedures
☒	KDB 941225 D05v02r04	SAR Evaluation Considerations for LTE Devices
☒	KDB 941225 D06v02r01	SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities
☐	KDB 941225 D07v01r02	SAR Evaluation Procedures for UMPC Mini-Tablet Devices

7 Testing Environment

Ambient temperature	: 18°C ~ 25°C
Relative humidity	: 30% ~ 70%
Liquid temperature of during the test	: $\pm 2^{\circ}\text{C}$
Ambient noise & Reflection	: < 0.012 W/kg

8 Specific Absorption Rate (SAR)

8.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled

8.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$SAR = \frac{d}{dt} \left(\frac{dW}{dm} \right) = \frac{d}{dt} \left(\frac{dW}{\rho dv} \right)$$

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be either related to the temperature elevation in tissue by

$$SAR = C \left(\frac{\delta T}{\delta t} \right)$$

Where: C is the specific heat capacity, δT is the temperature rise and δt is the exposure duration, or related to the electrical field in the tissue by

$$SAR = \frac{\sigma |E|^2}{\rho}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

8.3 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate ("SAR") in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE C95.3-2003, Copyright 2003 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields," NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting

source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter. Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

(1) Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube). Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety program in a work environment.

(2) Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section.

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Partial Peak SAR (Partial)	1.60 m W/g	8.00 m W/g
Partial Average SAR (Whole Body)	0.08 m W/g	0.40 m W/g
Partial Peak SAR (Hands/Feet/Ankle/Wrist)	4.00 m W/g	20.00 m W/g

1. The spatial Peak value of the SAR averaged over any 1g gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

9 The SAR Measurement System

A block diagram of the SAR measurement System is given in Fig. 1. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY5 professional system). The model EX3DV4 field probe is used to determine the internal electric fields. The SAR can be obtained from the equation $SAR = \sigma (|E_i|^2) / \rho$ where σ and ρ are the conductivity and mass density of the tissue-simulant.

The DASY 5 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (Staubli TX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
- A dosimeter probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- Data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

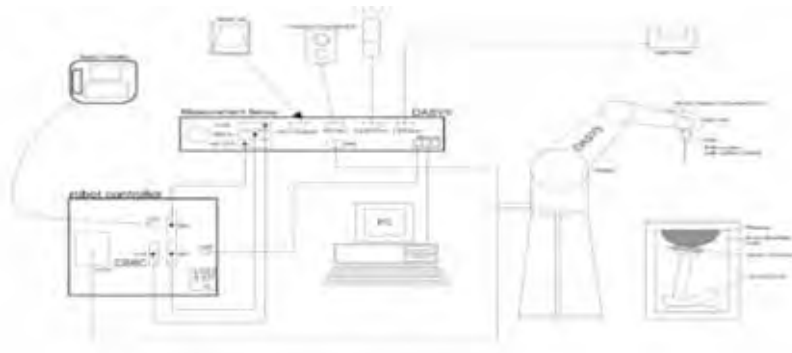


Fig a. The microwave circuit arrangement used for SAR system verification

- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 7.
- DASY5 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Verification dipole kits allowing to validate the proper functioning of the system.

10 System Components

10.1 Probe

- Construction** : Symmetrical design with triangular core.
Built-in shielding against static charges.
PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
- Calibration** : Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 835 and HSL1900.
Additional CF-Calibration for other liquids and frequencies upon request.
- Frequency** : 10 MHz to 6 GHz; Linearity: ± 0.2 dB (30 MHz to 6 GHz)
- Directivity** : ± 0.3 dB in HSL (rotation around probe axis)
 ± 0.5 dB in tissue material (rotation normal to probe axis)
- Dynamic Range** : $10\mu\text{W/g}$ to > 100 m W/g;
Linearity: ± 0.2 dB(noise: typically $< 1\mu\text{W/g}$)
- Dimensions** : Overall length: 337 mm (Tip length: 20 mm)
Tip diameter: 2.5 mm (Body diameter: 12 mm)
Distance from probe tip to dipole centers: 1 mm
- Application** : High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%



EX3DV4 E-Field Probe

NOTE:

- The Probe parameters have been calibrated by the SPEAG. Please reference "APPENDIX C" for the Calibration Certification Report.

10.2 SAM Phantom

- Construction** : The SAM Phantom is constructed of a fiberglass shell integrated in a wooden table. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90 % of all users. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot

ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4, but has reinforced top structure



SAM Phantom

- Shell Thickness** : $2.0\text{ mm} \pm 0.1\text{ mm}$
- Filling Volume** : Approx. 25 liters

10.3 Device Holder

Construction: : In combination with the Twin SAM PhantomV4.0/V4.0C or Twin SAM, the Mounting Device (made from POM) enables the rotation of the mounted transmitter in spherical coordinates, whereby the rotation point is the ear opening. The devices can be easily and accurately positioned according to IEC, IEEE, CENELEC, FCC or other specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).



Device Holder

11 SAR Measurement Procedures

11.1 Normal SAR Measurement Procedure

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The Minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 1.4 mm. This distance cannot be smaller than the Distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2 and 3: Area Scan & Zoom Scan Procedures

The entire evaluation of the spatial peak values is performed within the Post-processing engine (SEMCAD). The system always gives the maximum values for the 1 g and 10 g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

1. The extraction of the measured data (grid and values) from the Zoom Scan.
2. The calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. The generation of a high-resolution mesh within the measured volume
4. The interpolation of all measured values from the measurement grid to the high-resolution grid
5. The extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
6. The calculation of the averaged SAR within masses of 1 g and 10 g.

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

< Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04 >

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom} , Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.				
* When zoom scan is required and the <u>reported</u> SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

12 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Fig. 1. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values. These tests were done at 750 / 835 / 1750 / 1900 / 2300 / 2450 / 2600 / 5300 / 5600 / 5800 MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1. (SAR values are normalized to 1W forward power delivered to the dipole). During the tests, the ambient temperature of the laboratory was in the range 18 ~ 25° C, the relative humidity was in the range 30 ~ 70 % R.H and the liquid depth above the ear reference points was $\geq 15 \text{ cm} \pm 5 \text{ mm}$ (frequency $\leq 3 \text{ GHz}$) or $\geq 10 \text{ cm} \pm 5 \text{ mm}$ (frequency $> 3 \text{ GHz}$) in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

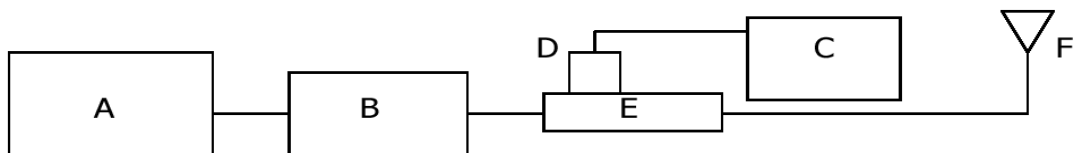


Fig 1. The microwave circuit arrangement used for SAR system verification

- A. Agilent Model E8247C Signal Generator
- B. MECA Model AMP2027 Power Amplifier
- EMPOWER Model 2002-BBS2C4AEL Power Amplifier
- C. Agilent Model E4419B / E4416A Power Meter
- D. Agilent Model E9300H / E9327A Power Sensor
- E. Agilent Model 772D / 778D Dual Directional Coupler
- F. Reference dipole Antenna



Photo of the dipole Antenna

Head SAR System Verification

Verification Kit	Probe S/N	Tissue	Target SAR 1 g from Calibration Certificate (1 W)	Measured SAR 1 g (0.1 W)	Normalized SAR 1 g (1 W)	Deviation (%)	Date	Liquid Temp. (°C)
D750V3 SN:1085	3791	750	8.29	0.858	8.58	3.50	2018-03-31	21.0
D750V3 SN:1085	3791	750	8.29	0.882	8.82	6.39	2018-03-31	21.0
D835V2 SN:4d138	3791	835	9.61	0.964	9.64	0.31	2018-04-02	21.8
D1750V2 SN:1116	3862	1750	36.60	3.61	36.10	-1.37	2018-04-01	22.0
D1900V2 SN:5d033	3862	1900	37.90	3.65	36.50	-3.69	2018-04-01	22.0
D2300V2 SN:1028	3791	2300	48.80	4.62	46.20	-5.33	2018-03-28	22.1
D2450V2 SN:892	3791	2450	51.80	4.90	49.00	-5.41	2018-03-28	22.0
D2600V2 SN:1038	3791	2600	57.10	5.70	57.00	-0.18	2018-03-28	22.1
D5GHzV2 SN:1106	3862	5300	84.20	7.85	78.50	-6.77	2018-04-03	21.8
D5GHzV2 SN:1106	3862	5600	86.20	8.11	81.10	-5.92	2018-04-03	21.8
D5GHzV2 SN:1106	3862	5800	82.80	8.00	80.00	-3.38	2018-04-03	21.8

Table1. Results system verification

- **Body SAR System Verification**

Verification Kit	Probe S/N	Tissue	Target SAR 1 g from Calibration Certificate (1 W)	Measured SAR 1 g (0.1 W)	Normalized SAR 1 g (1 W)	Deviation (%)	Date	Liquid Temp. (°C)
D750V3 SN:1085	3791	750	8.68	0.847	8.47	-2.42	2018-03-31	21.9
D750V3 SN:1085	3791	750	8.68	0.877	8.77	1.04	2018-03-31	21.9
D835V2 SN:4d138	3862	835	9.50	0.986	9.86	3.79	2018-03-29	21.7
D1750V2 SN:1116	3862	1750	36.80	3.81	38.10	3.53	2018-03-29	21.7
D1900V2 SN:5d033	3862	1900	40.70	3.90	39.00	-4.18	2018-04-01	21.9
D2300V2 SN:1028	3933	2300	46.90	4.49	44.90	-4.26	2018-03-30	21.7
D2450V2 SN:892	3862	2450	50.60	4.72	47.20	-6.72	2018-03-30	21.7
D2450V2 SN:892	3862	2450	50.60	5.26	52.60	3.95	2018-04-02	21.4
D2600V2 SN:1038	3862	2600	54.40	5.06	50.60	-6.99	2018-03-30	21.8
D5GHzV2 SN:1106	3862	5300	79.60	7.50	75.00	-5.78	2018-04-02	21.6
D5GHzV2 SN:1106	3862	5600	81.60	7.67	76.7	-6.00	2018-04-02	21.6
D5GHzV2 SN:1106	3862	5800	79.10	7.61	76.10	-3.79	2018-04-02	21.5

Table2. Results system verification

13 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this simulant fluid were measured by using the Speag Model DAK-3.5 Dielectric Probe in conjunction with Agilent E5071C Network Analyzer(300 kHz - 6 GHz) by using a procedure detailed in Section V.

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			Permittivity	Conductivity	Simulated Tissue Temp(°C)
750.0	Head	Measured, 2018-03-31	40.96	0.93	21.0
		Target Tissue	41.90	0.89	
		Deviation (%)	-2.24	4.49	
665.5		Measured, 2018-03-31	41.75	0.86	
Deviation (%)		-0.36	-3.37		
715.3		Measured, 2018-03-31	41.17	0.90	
		Deviation (%)	-1.74	1.12	
750.0	Head	Measured, 2018-03-31	42.37	0.85	21.0
		Target Tissue	41.90	0.89	
		Deviation (%)	1.12	-4.49	
779.5		Measured, 2018-03-31	41.92	0.88	
Deviation (%)		0.05	-1.12		
795.5		Measured, 2018-03-31	41.69	0.90	
		Deviation (%)	-0.50	1.12	
750.0	Body	Measured, 2018-03-31	55.82	0.96	21.9
		Target Tissue	55.50	0.96	
		Deviation (%)	0.58	0.00	
779.5		Measured, 2018-03-31	55.57	0.99	
Deviation (%)		0.13	3.13		
793.0		Measured, 2018-03-31	55.42	1.00	
		Deviation (%)	-0.14	4.17	
750.0	Body	Measured, 2018-03-31	55.73	0.99	21.9
		Target Tissue	55.50	0.96	
		Deviation (%)	0.41	3.13	
665.5		Measured, 2018-03-31	56.41	0.92	
Deviation (%)		1.64	-4.17		
715.3		Measured, 2018-03-31	55.93	0.96	
		Deviation (%)	0.77	0.00	
835.0	Body	Measured, 2018-03-29	55.46	0.96	21.7
		Target Tissue	55.20	0.97	
		Deviation (%)	0.47	-1.03	
814.7		Measured, 2018-03-29	55.64	0.94	
Deviation (%)		0.80	-3.09		
848.8		Measured, 2018-03-29	55.35	0.97	
		Deviation (%)	0.27	0.00	

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			Permittivity	Conductivity	Simulated Tissue Temp(°C)
835.0	Head	Measured, 2018-04-02	40.47	0.89	21.8
		Target Tissue	41.50	0.90	
		Deviation (%)	-2.48	-1.11	
820.1		Measured, 2018-04-02	40.50	0.88	
		Deviation (%)	-2.41	-2.22	
		848.8	Measured, 2018-04-02	40.45	
Deviation (%)			-2.53	1.11	
1750.0	Body		Measured, 2018-03-29	51.20	1.51
		Target Tissue	53.40	1.49	
		Deviation (%)	-4.12	1.34	
1710.7		Measured, 2018-03-29	51.38	1.47	
		Deviation (%)	-3.78	-1.34	
		1770.0	Measured, 2018-03-29	51.14	1.53
Deviation (%)			-4.23	2.68	
1750.0	Head		Measured, 2018-04-01	38.40	1.41
		Target Tissue	40.10	1.37	
		Deviation (%)	-4.24	2.92	
1710.7		Measured, 2018-04-01	38.56	1.37	
		Deviation (%)	-3.84	0.00	
		1779.3	Measured, 2018-04-01	38.31	1.43
Deviation (%)			-4.46	4.38	
1900.0	Head		Measured, 2018-04-01	38.09	1.38
		Target Tissue	40.00	1.40	
		Deviation (%)	-4.77	-1.43	
1850.2		Measured, 2018-04-01	38.23	1.34	
		Deviation (%)	-4.43	-4.29	
		1914.3	Measured, 2018-04-01	38.07	1.40
Deviation (%)			-4.83	0.00	
1900.0	Body		Measured, 2018-04-01	54.93	1.51
		Target Tissue	53.30	1.52	
		Deviation (%)	3.06	-0.66	
1850.2		Measured, 2018-04-01	55.12	1.46	
		Deviation (%)	3.41	-3.95	
		1914.3	Measured, 2018-04-01	54.89	1.53
Deviation (%)			2.98	0.66	
2300.0	Head		Measured, 2018-03-28	39.67	1.68
		Target Tissue	39.50	1.67	
		Deviation (%)	0.43	0.60	
2307.5		Measured, 2018-03-28	39.65	1.69	
		Deviation (%)	0.38	1.20	
		2312.5	Measured, 2018-03-28	39.63	1.69
Deviation (%)			0.33	1.20	

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			Permittivity	Conductivity	Simulated Tissue Temp(°C)
2300.0	Body	Measured, 2018-03-30	51.94	1.80	21.7
		Target Tissue	52.90	1.81	
		Deviation (%)	-1.81	-0.55	
2307.5		Measured, 2018-03-30	51.91	1.81	
Deviation (%)		-1.87	0.00		
2312.5		Measured, 2018-03-30	51.89	1.82	
		Deviation (%)	-1.91	0.55	
2450.0	Head	Measured, 2018-03-28	38.64	1.86	22.0
		Target Tissue	39.20	1.80	
		Deviation (%)	-1.43	3.33	
2402.0		Measured, 2018-03-28	38.79	1.81	
Deviation (%)		-1.05	0.56		
2480.0		Measured, 2018-03-28	38.54	1.89	
		Deviation (%)	-1.68	5.00	
2450.0	Body	Measured, 2018-03-30	50.84	1.94	21.7
		Target Tissue	52.70	1.95	
		Deviation (%)	-3.53	-0.51	
2402.0		Measured, 2018-03-30	50.93	1.88	
Deviation (%)		-3.36	-3.59		
2480.0		Measured, 2018-03-30	50.73	1.97	
		Deviation (%)	-3.74	1.03	
2450.0	Body	Measured, 2018-04-02	50.46	1.99	21.4
		Target Tissue	52.70	1.95	
		Deviation (%)	-4.25	2.05	
2412.0		Measured, 2018-04-02	50.61	1.95	
Deviation (%)		-3.97	0.00		
2462.0		Measured, 2018-04-02	50.41	2.01	
		Deviation (%)	-4.35	3.08	
2600.0	Head	Measured, 2018-03-28	38.15	2.01	22.1
		Target Tissue	39.00	1.96	
		Deviation (%)	-2.18	2.55	
2502.5		Measured, 2018-03-28	38.47	1.90	
Deviation (%)		-1.36	-3.06		
2567.5		Measured, 2018-03-28	38.27	1.97	
		Deviation (%)	-1.87	0.51	
2600.0	Body	Measured, 2018-03-30	51.74	2.22	21.8
		Target Tissue	52.50	2.16	
		Deviation (%)	-1.45	2.78	
2502.5		Measured, 2018-03-30	52.02	2.10	
Deviation (%)		-0.91	-2.78		
2567.5		Measured, 2018-03-30	51.84	2.18	
		Deviation (%)	-1.26	0.93	

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			Permittivity	Conductivity	Simulated Tissue Temp(°C)
5300.0	Body	Measured, 2018-04-02	47.15	5.34	21.6
		Target Tissue	48.90	5.42	
		Deviation (%)	-3.58	-1.48	
5260.0		Measured, 2018-04-02	46.95	5.20	
		Deviation (%)	-3.99	-4.06	
		5320.0	Measured, 2018-04-02	47.22	
Deviation (%)			-3.44	-0.92	
5300.0	Head		Measured, 2018-04-03	35.20	4.75
		Target Tissue	35.90	4.76	
		Deviation (%)	-1.95	-0.21	
5260.0		Measured, 2018-04-03	35.26	4.65	
		Deviation (%)	-1.78	-2.31	
		5320.0	Measured, 2018-04-03	35.22	4.77
Deviation (%)			-1.89	0.21	
5600.0	Body		Measured, 2018-04-02	46.51	5.87
		Target Tissue	48.50	5.77	
		Deviation (%)	-4.10	1.73	
5500.0		Measured, 2018-04-02	46.70	5.73	
		Deviation (%)	-3.71	-0.69	
		5720.0	Measured, 2018-04-02	46.30	6.05
Deviation (%)			-4.54	4.85	
5600.0	Head		Measured, 2018-04-03	34.14	5.08
		Target Tissue	35.50	5.07	
		Deviation (%)	-3.83	0.20	
5500.0		Measured, 2018-04-03	35.23	4.93	
		Deviation (%)	-0.76	-2.76	
		5720.0	Measured, 2018-04-03	35.22	5.24
Deviation (%)			-0.79	3.35	
5800.0	Body		Measured, 2018-04-02	47.38	6.06
		Target Tissue	48.20	6.00	
		Deviation (%)	-1.70	1.00	
5745.0		Measured, 2018-04-02	47.48	5.91	
		Deviation (%)	-1.49	-1.50	
		5825.0	Measured, 2018-04-02	47.62	6.10
Deviation (%)			-1.20	1.67	
5800.0	Head		Measured, 2018-04-03	34.87	5.42
		Target Tissue	35.30	5.27	
		Deviation (%)	-1.22	2.85	
5745.0		Measured, 2018-04-03	35.04	5.35	
		Deviation (%)	-0.74	1.52	
		5825.0	Measured, 2018-04-03	34.95	5.46
Deviation (%)			-0.99	3.61	

The composition of the brain & muscle tissue simulating liquid

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Ingredients (% by weight)	Frequency (MHz)									
	450		835		900		1900		2450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.91	46.21	40.29	50.75	40.29	50.75	55.24	70.17	55.00	68.64
Salt (NaCl)	3.79	2.34	1.38	0.94	1.38	0.94	0.31	0.39	-	-
Sugar	56.93	51.17	57.90	-	57.90	-	-	-	-	-
HEC	0.25	0.15	0.24	0.10	0.24	0.10	-	-	-	-
Bactericide	0.12	0.08	0.18	-	0.18	-	-	-	-	-
Triton X-100	-	-	-	-	-	-	-	-	-	-
DGBE	-	-	-	-	-	-	44.45	70.17	45.00	31.37
Dielectric Constant	43.5	56.7	41.5	55.2	41.5	55.0	40.0	53.3	39.2	52.7
Conductivity (S/m)	0.87	0.94	0.90	0.97	0.97	1.05	1.40	1.52	1.80	1.95

Salt: 99 % Pure Sodium Chloride

Sugar: 98 % Pure Sucrose

Water: De-ionized, 16 MΩ⁺ resistivity

HEC: Hydroxyethyl Cellulose

DGBE: 99 % Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]

Triton X-100 (ultra pure): Polyethylene glycol mono [4-(1,1, 3, 3-tetramethylbutyl)phenyl]ether

Simulating Liquids for 5 GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	78
Mineral Oil	11
Emulsifiers	9
Additives and Salt	2

14. Instruments List

Test Platform	SPEAG DASY5 Professional				
Location	SGS Korea Co., Ltd. 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, E&E Lab				
Manufacture	SPEAG				
Description	SAR Test System (Frequency range 300 MHz - 6 GHz)				
Software Reference	DASY52: 52.10.0(1446) SEMCAD X: 14.6.10(7417)				
Equipment	Type	Serial Number	Cal Date	Cal Interval	Cal Due
Robot	RX90B L	F13/5S7KC1/A/01	N/A	N/A	N/A
Phantom	SAM Phantom	TP-1821	N/A	N/A	N/A
Phantom	SAM Phantom	TP-1843	N/A	N/A	N/A
Phantom	SAM Phantom	TP-1910	N/A	N/A	N/A
Verification Dipole	D750V3	1085	2017-03-15	Biennial	2019-03-15
Verification Dipole	D835V2	4d138	2017-04-24	Biennial	2019-04-24
Verification Dipole	D1750V2	1116	2017-07-21	Biennial	2019-07-21
Verification Dipole	D1900V2	5d033	2016-05-26	Biennial	2018-05-26
Verification Dipole	D2300V2	1028	2017-11-15	Biennial	2019-11-15
Verification Dipole	D2450V2	892	2017-04-21	Biennial	2019-04-21
Verification Dipole	D2600V2	1038	2017-05-30	Biennial	2019-05-30
Verification Dipole	D5GHzV2	1106	2017-05-26	Biennial	2019-05-26
DAE	DAE4	1340	2017-05-23	Annual	2018-05-23
DAE	DAE4	1507	2017-08-22	Annual	2018-08-22
E-Field Probe	EX3DV4	3862	2017-09-25	Annual	2018-09-25
E-Field Probe	EX3DV4	3791	2017-05-31	Annual	2018-05-31
E-Field Probe	EX3DV4	3933	2017-09-28	Annual	2019-09-28
Network Analyzer	E5071C	MY46111535	2017-05-23	Annual	2018-05-23
Power Meter	E4419B	GB43311125	2017-06-25	Annual	2018-06-25
Power Meter	E4416A	GB41292123	2017-12-13	Annual	2018-12-13
Power Sensor	E9300H	MY41495307	2017-06-25	Annual	2018-06-25
Power Sensor	E9300H	MY41495314	2017-06-25	Annual	2018-06-25
Power Sensor	E9327A	US40441371	2017-12-13	Annual	2018-12-13
Signal Generator	E8247C	MY43321024	2017-06-14	Annual	2018-06-14
Power Amplifier	2002-BBS2C4AEL	1029 D/C 0341	2017-12-07	Annual	2018-12-07
Power Amplifier	BLMA1060-10	1711221	2017-06-10	Annual	2018-06-10
Dual Directional Coupler	778D	MY52180497	2017-06-18	Annual	2018-06-18
Dual Directional Coupler	772D	MY52180226	2017-06-18	Annual	2018-06-18
LP Filter	LA-15N	LF02	2017-06-18	Annual	2018-06-18
LP Filter	LA-30N	LF03	2017-06-18	Annual	2018-06-18
LP Filter	LA-60N	LF04	2017-06-18	Annual	2018-06-18
Attenuator	05AS102-K03	A1	2017-12-08	Annual	2018-12-08
Attenuator	05AS102-K20	A3	2017-12-08	Annual	2018-12-08
Attenuator	05AS102-K20	A4	2017-12-08	Annual	2018-12-08
Hygro-Thermometer	BJ5478	12091382-1	2017-06-21	Annual	2018-06-21
Digital Thermometer	SDT25	17041500018	2017-08-11	Annual	2018-08-11
Communication Tester	MT8821C	6201502996	2017-09-14	Annual	2018-09-14
Spectrum Analyzer	FSV7	103082	2017-07-11	Annual	2018-07-11

15 FCC Power Measurement Procedures

The SAR measurement Software calculates a reference point at the start and end of the test to check for power drifts. If conducted power deviations of more than 5 % occurred, the tests were repeated.

16 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, When SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as reported SAR. Test highest reported SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

17 Maximum Output Power Specifications This device operates using the following maximum output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v06

GSM/UMTS/CDMA Maximum Power

Mode / Band		Voice (dBm)	Burst Average GMSK (dBm)			
		1TX Slot	1TX Slots	2TX Slots	3TX Slots	4TX Slots
GSM 850	Maximum	33.0	33.0	30.5	29.0	28.0
	Nominal	32.5	32.5	30.0	28.5	27.5
GSM 1900	Maximum	30.5	30.5	28.0	26.0	25.0
	Nominal	30.0	30.0	27.5	25.5	24.5

Mode / Band		Modulated Average
UMTS 850	Maximum	24.8
	Nominal	24.3
UMTS 1750	Maximum	25.0
	Nominal	24.5
UMTS 1900	Maximum	25.0
	Nominal	24.5
CDMA/EVDO BC10(§ 90S)	Maximum	26.0
	Nominal	25.5
CDMA/EVDO BC0 (§ 22H)	Maximum	25.0
	Nominal	24.5
PCS CDMA/EVDO	Maximum	24.5
	Nominal	24.0

LTE Maximum Power

Mode / Band		Modulated Average
LTE Band 71	Maximum	25.3
	Nominal	24.8
LTE Band 12	Maximum	25.0
	Nominal	24.5
LTE Band 13	Maximum	25.0
	Nominal	24.5
LTE Band 14	Maximum	25.0
	Nominal	24.5
LTE Band 26	Maximum	25.0
	Nominal	24.5
LTE Band 5	Maximum	25.0
	Nominal	24.5
LTE Band 66	Maximum	25.0
	Nominal	24.5
LTE Band 25	Maximum	25.0
	Nominal	24.5
LTE Band 30	Maximum	24.0
	Nominal	23.5
LTE Band 7	Maximum	24.0
	Nominal	23.5
LTE Band 41(PC2)	Maximum	27.5
	Nominal	27.0
LTE Band 41(PC3)	Maximum	24.5
	Nominal	24.0

GSM/UMTS/CDMA/LTE Reduced Power - Hotspot Mode Activated

Mode / Band		Burst Average GMSK (dBm)			
		1TX Slots	2TX Slots	3TX Slots	4TX Slots
GPRS/EDGE 1900	Maximum	26.5	25.0	23.0	21.0
	Nominal	26.0	24.5	22.5	20.5

Mode / Band		Modulated Average
UMTS 1750	Maximum	19.5
	Nominal	19.0
UMTS 1900	Maximum	19.5
	Nominal	19.0
PCS CDMA/EVDO	Maximum	20.5
	Nominal	20.0
LTE Band 66	Maximum	20.0
	Nominal	19.5
LTE Band 25	Maximum	20.0
	Nominal	19.5
LTE Band 30	Maximum	20.0
	Nominal	19.5
LTE Band 7	Maximum	21.0
	Nominal	20.5
LTE Band 41(PC2)	Maximum	23.0
	Nominal	22.5
LTE Band 41(PC3)	Maximum	23.0
	Nominal	22.5

GSM/UMTS/CDMA/LTE Reduced Power – Grip Sensor Activated

Mode / Band		Voice (dBm)	Burst Average GMSK (dBm)			
		1TX Slot	1TX Slots	2TX Slots	3TX Slots	4TX Slots
GSM/GPRS/EDGE 1900	Maximum	28.0	28.0	26.5	24.5	22.5
	Nominal	27.5	27.5	26.0	24.0	22.0

Mode / Band		Modulated Average
UMTS 1750	Maximum	21.5
	Nominal	21.0
UMTS 1900	Maximum	21.5
	Nominal	21.0
PCS CDMA/EVDO	Maximum	21.5
	Nominal	21.0
LTE Band 66	Maximum	21.5
	Nominal	21.0
LTE Band 25	Maximum	22.5
	Nominal	22.0
LTE Band 30	Maximum	21.5
	Nominal	21.0
LTE Band 7	Maximum	21.0
	Nominal	20.5
LTE Band 41(PC2)	Maximum	24.5
	Nominal	24.0

WLAN Maximum Power

Mode / Band		Modulated Average
IEEE 802.11b(2.4 GHz) SISO	Maximum	20.5
	Nominal	20.0
IEEE 802.11n,ac(5 GHz) SISO	Maximum	17.5
	Nominal	17.0
IEEE 802.11ac(5 GHz) MIMO	Maximum	15.5
	Nominal	15.0

WLAN Reduced Power

Mode / Band		Modulated Average
IEEE 802.11b(2.4 GHz) SISO	Maximum	13.5
	Nominal	13.0
IEEE 802.11ac(5 GHz) SISO	Maximum	12.5
	Nominal	12.0

Bluetooth Maximum Power

Mode / Band		Modulated Average
Bluetooth (1 Mbps)	Maximum	16.5
	Nominal	16.0

18. RF Conducted Power Measurement

- CDMA/GSM/UMTS Maximum Conducted power

Mode / Band	Frequency (MHz)	Channel	Service	Conducted Power (dBm)
GSM 850	836.60	190	GSM	32.81
GSM 850	836.60	190	GPRS 4TX	26.85
GSM 1900	1880.00	661	GSM	29.72
UMTS 850	836.60	4183	RMC	24.49
UMTS 1750	1732.40	1412	RMC	24.54
UMTS 1750	1752.6	1513	RMC	24.61
UMTS 1900	1880.00	9400	RMC	24.99
CDMA BC10	820.10	564	RC3 / SO55	25.08
CDMA BC10	820.10	564	TDSO / SO32	25.01
CDMA BC10	820.10	564	EVDO Rev.0	25.12
CDMA BC0	836.52	384	RC3 / SO55	24.66
CDMA BC0	836.52	384	TDSO / SO32	24.65
CDMA BC0	824.70	1013	EVDO Rev.0	24.53
PCS CDMA	1880.00	600	RC3 / SO55	24.27
PCS CDMA	1908.75	1175	TDSO / SO32	24.13

- LTE Maximum Conducted power

Band	Bandwidth	Antenna Config.	Frequency (MHz)	Channel	Modulation	RB Size	RB Offset	Conducted Power (dBm)
LTE Band 71	20	N/A	680.50	133297	QPSK	1	50	24.59
LTE Band 12	10	N/A	707.50	23095	QPSK	1	25	24.26
LTE Band 13	10	N/A	782.00	23230	QPSK	1	0	24.58
LTE Band 14	10	N/A	793.00	23330	QPSK	1	25	24.57
LTE Band 26	15	N/A	831.50	26865	QPSK	1	36	24.48
LTE Band 5	10	N/A	836.50	20525	QPSK	1	0	24.45
LTE Band 66	20	N/A	1770.00	132572	QPSK	1	0	24.40
LTE Band 25	20	N/A	1882.50	26365	QPSK	1	0	24.77
LTE Band 25	20	N/A	1860.00	26140	QPSK	1	0	24.72
LTE Band 30	10	Ant B	2310.00	27710	QPSK	1	49	23.83
LTE Band 30	10	Ant A	2310.00	27710	QPSK	1	0	24.00
LTE Band 7	20	Ant B	2535.00	21100	QPSK	1	0	23.80
LTE Band 41	20	N/A	2549.50	40185	QPSK	1	0	27.18

- GSM/UMTS/CDMA Reduced Conducted power - Hotspot Mode Activated

Mode / Band	Frequency (MHz)	Channel	Service	Conducted Power (dBm)
GSM 1900	1880.0	661	GPRS 3TX	21.71
UMTS 1750	1732.4	1412	RMC	19.17
UMTS 1900	1880.0	9400	RMC	18.98
PCS CDMA	1908.75	1175	EVDO Rev.0	20.11

- LTE Reduced Conducted power - Hotspot Mode Activated

Band	Bandwidth	Antenna Config.	Frequency (MHz)	Channel	Modulation	RB Size	RB Offset	Conducted Power (dBm)
LTE Band 66	20	N/A	1770.00	132572	QPSK	50	0	19.62
LTE Band 25	20	N/A	1905.00	26590	QPSK	50	0	19.78
LTE Band 30	10	Ant A	2310.00	27710	QPSK	1	0	19.72
LTE Band 7	20	Ant A	2535.00	21100	QPSK	1	0	20.78
LTE Band 41	20	N/A	2593.00	40620	QPSK	1	0	22.73

- GSM/UMTS/CDMA Reduced Conducted power - Grip Sensor Activated

Mode / Band	Frequency (MHz)	Channel	Service	Conducted Power (dBm)
GSM 1900	1880.0	661	GPRS 3TX	23.72
UMTS 1750	1752.6	1513	RMC	21.31
UMTS 1900	1852.4	9262	RMC	20.75
PCS CDMA	1851.25	25	EVDO Rev.0	21.30

- LTE Reduced Conducted power - Grip Sensor Activated

Band	Bandwidth	Antenna Config.	Frequency (MHz)	Channel	Modulation	RB Size	RB Offset	Conducted Power (dBm)
LTE Band 66	20	N/A	1770.0	132572	QPSK	50	25	21.32
LTE Band 25	20	N/A	1882.50	26365	QPSK	1	0	22.25
LTE Band 30	10	Ant B	2310.00	27710	QPSK	25	0	21.28
LTE Band 7	20	Ant B	2560.00	21350	QPSK	50	0	20.74

- WLAN Maximum Conducted power

Mode / Band	Antenna	Frequency (MHz)	Channel	Conducted Power (dBm)
802.11b	2	2412.0	1	20.47
802.11b	1	2462.0	11	20.31
802.11n	2	5270.0	54	16.67
802.11n	1	5270.0	54	16.60
802.11ac	1	5610.0	122	16.59
802.11ac	1	5775.0	155	16.67

- WLAN MIMO Maximum Conducted power

Mode / Band	Antenna	Frequency (MHz)	Channel	Conducted Power (dBm) Ant1	Conducted Power (dBm) Ant2
802.11ac	MIMO	5775.0	155	16.67	17.50

- WLAN Reduced Conducted power

Mode / Band	Antenna	Frequency (MHz)	Channel	Conducted Power (dBm)
802.11b	1	2462.0	11	13.46
802.11ac	2	5290.0	58	12.38
802.11ac	2	5610.0	122	12.24
802.11ac	2	5775.0	155	12.49

- Bluetooth Maximum Conducted power

Mode / Band	Frequency (MHz)	Channel	Conducted Power (dBm)
Bluetooth	2441.00	39	16.40

19. SAR Data Summary

19.1 Head SAR data

Cell Phone+ LED Cover GSM/UMTS/CDMA Head SAR

EUT Position	Mode	Service	Ant State	Traffic Channel		Power(dBm)		1-g SAR (W/kg)	Scaling Factor (Power)	1-g Scaled SAR (W/kg)	Plot No.
				Frequency (MHz)	Channel	Conducted Power	Tune-Up Limit				
Right Touch	GSM 850	GSM	N/A	836.60	190	32.81	33.00	0.156	1.045	0.163	A17
Left Touch	GSM 1900	GSM	N/A	1880.00	661	29.72	30.50	0.069	1.197	0.083	A18
Right Touch	UMTS 850	RMC	18	836.60	4183	24.49	24.80	0.199	1.074	0.214	A19
Left Touch	UMTS 1750	RMC	0	1732.40	1412	24.54	25.00	0.112	1.112	0.125	A20
Left Touch	UMTS 1900	RMC	0	1880.00	9400	24.99	25.00	0.083	1.002	0.083	A21
Right Touch	CDMA BC10	RC3 / SO55	6	820.10	564	25.08	26.00	0.229	1.236	0.283	A22
Right Touch	CDMA BC0	RC3 / SO55	6	836.52	384	24.66	25.00	0.239	1.081	0.258	A23
Left Touch	PCS CDMA	RC3 / SO55	77	1880.00	600	24.27	24.50	0.102	1.054	0.108	A24

Cell Phone+ LED Cover LTE FDD Head SAR

EUT Position	Mode	Bandwidth (MHz)	Ant State	Antenna Conig	Traffic Channel		Modulation	RB Size	RB offset	Power(dBm)		1-g SAR (W/kg)	Scaling Factor (Power)	1-g Scaled SAR (W/kg)	Plot No.
					Frequency (MHz)	Channel				Conducted Power	Tune-Up Limit				
Right Touch	LTE 71	20	10	N/A	680.50	133297	QPSK	1	50	24.59	25.30	0.097	1.178	0.114	A25
Right Touch	LTE 12	10	76	N/A	707.50	23095	QPSK	1	25	24.26	25.00	0.121	1.186	0.144	A26
Right Touch	LTE 13	10	1	N/A	782.00	23230	QPSK	1	0	24.58	25.00	0.150	1.102	0.165	A27
Right Touch	LTE 14	10	1	N/A	793.00	23330	QPSK	1	25	24.57	25.00	0.137	1.104	0.151	A28
Right Touch	LTE 26	15	10	N/A	831.50	26865	QPSK	1	36	24.48	25.00	0.176	1.127	0.198	A29
Right Touch	LTE 5	10	10	N/A	836.50	20525	QPSK	1	0	24.45	25.00	0.177	1.135	0.201	A30
Left Touch	LTE 66	20	0	N/A	1770.00	132572	QPSK	1	0	24.40	25.00	0.110	1.148	0.126	A31
Left Touch	LTE 25	20	0	N/A	1882.50	26365	QPSK	1	0	24.77	25.00	0.084	1.054	0.089	A32
Right Touch	LTE 30	10	N/A	Ant B	2310.00	27710	QPSK	1	49	23.83	24.00	0.050	1.040	0.052	A33
Left Touch	LTE 7	20	N/A	Ant B	2535.00	21100	QPSK	1	0	23.80	24.00	0.074	1.047	0.077	A34

Cell Phone+ LED Cover LTE TDD Head SAR

EUT Position	Mode	Uplink	Bandwidth (MHz)	Component Carrier	Traffic Channel		Modulation	RB Size	RB offset	Power(dBm)		1-g SAR (W/kg)	Scaling Factor (Power)	1-g Scaled SAR (W/kg)	Plot No.
					Frequency (MHz)	Channel				Conducted Power	Tune-Up Limit				
Left Touch	LTE 41	1 CC Uplink	20	PCC	2549.50	40185	QPSK	1	0	27.18	27.50	0.048	1.076	0.052	A35

Cell Phone+ LED Cover WLAN Head SAR

EUT Position	Mode	Antenna Cofig.	Traffic Channel		Power(dBm)		1-g SAR (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty cycle)	1-g Scaled SAR (W/kg)	Plot No.
			Frequency (MHz)	Channel	Conducted Power	Tune-Up Limit					
Right Touch	802.11b	1	2462.0	11	13.46	13.50	0.120	1.009	1.009	0.122	A36
Right Touch	802.11ac	2	5290.0	58	12.38	12.50	0.158	1.028	1.057	0.172	A37
Right Touch	802.11ac	2	5610.0	122	12.24	12.50	0.220	1.062	1.057	0.247	A38
Right Touch	802.11ac	2	5775.0	155	12.49	12.50	0.268	1.002	1.057	0.284	A39

Cell Phone+ LED Cover Bluetooth Head SAR

EUT Position	Mode	Service	Traffic Channel		Power(dBm)		1-g SAR (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty cycle)	1-g Scaled SAR (W/kg)	Plot No.
			Frequency (MHz)	Channel	Conducted Power	Tune-Up Limit					
Right Touch	Bluetooth	FHSS	2441.00	39	16.40	16.50	0.352	1.023	1.287	0.463	A40

19.2 Body Worn SAR data

Cell Phone+ LED Cover GSM/UMTS/CDMA Body Worn SAR

EUT Position	Mode	Service	Ant State	Traffic Channel		Spacing	Power(dBm)		1-g SAR (W/kg)	Scaling Factor (Power)	1-g Scaled SAR (W/kg)	Plot No.
				Frequency (MHz)	Channel		Conducted Power	Tune-Up Limit				
Rear	GSM 850	GSM	N/A	836.6	190	15mm	32.81	33.00	0.209	1.045	0.218	A41
Rear	GSM 1900	GSM	N/A	1880.0	661	15mm	29.72	30.50	0.205	1.197	0.245	A42
Rear	UMTS850	RMC	77	836.6	4183	15mm	24.49	24.80	0.280	1.074	0.301	A43
Rear	UMTS1750	RMC	0	1752.6	1513	15mm	24.61	25.00	0.514	1.094	0.562	A44
Rear	UMTS1900	RMC	0	1880.0	9400	15mm	24.99	25.00	0.288	1.002	0.289	A45
Rear	CDMA BC10	TDSO/SO32	8	820.10	564	15mm	25.01	26.00	0.313	1.256	0.393	A46
Rear	CDMA BC0	TDSO/SO32	8	826.52	384	15mm	24.65	25.00	0.319	1.084	0.346	A47
Rear	PCS CDMA	TDSO/SO32	76	1908.75	1175	15mm	24.13	24.50	0.199	1.089	0.217	A48

Cell Phone+ LED Cover LTE FDD Body Worn SAR

EUT Position	Mode	Bandwidth (MHz)	Ant State	Antenna Conig	Traffic Channel		Modulation	RB Size	RB offset	Spacing	Power(dBm)		1-g SAR (W/kg)	Scaling Factor (Power)	1-g Scaled SAR (W/kg)	Plot No.
					Frequency (MHz)	Channel					Conducted Power	Tune-Up Limit				
Rear	LTE 71	20	9	N/A	680.50	133297	QPSK	1	50	15mm	24.59	25.30	0.199	1.178	0.234	A49
Rear	LTE 12	10	2	N/A	707.50	23095	QPSK	1	25	15mm	24.26	25.00	0.202	1.186	0.240	A50
Rear	LTE 13	10	1	N/A	782.00	23230	QPSK	1	0	15mm	24.58	25.00	0.250	1.102	0.276	A51
Rear	LTE 14	10	17	N/A	793.00	23330	QPSK	1	25	15mm	24.57	25.00	0.245	1.104	0.270	A52
Rear	LTE 26	15	26	N/A	831.50	26865	QPSK	1	36	15mm	24.48	25.00	0.200	1.127	0.225	A53
Rear	LTE 5	10	21	N/A	836.50	20525	QPSK	1	0	15mm	24.45	25.00	0.252	1.135	0.286	A54
Rear	LTE 66	20	0	N/A	1770.00	132572	QPSK	1	0	15mm	24.40	25.00	0.629	1.148	0.722	A55
Rear	LTE 25	20	0	N/A	1860.00	26140	QPSK	1	0	15mm	24.72	25.00	0.354	1.067	0.378	A56
Rear	LTE 30	10	N/A	Ant A	2310.00	27710	QPSK	1	0	15mm	23.41	24.00	0.226	1.146	0.259	A57
Rear	LTE 7	20	N/A	Ant B	2535.00	21100	QPSK	1	0	15mm	23.80	24.00	0.294	1.047	0.308	A58

Cell Phone+ LED Cover LTE TDD Body Worn SAR

EUT Position	Mode	Uplink	Bandwidth (MHz)	Component Carrier	Traffic Channel		Modulation	RB Size	RB offset	Spacing	Power(dBm)		1-g SAR (W/kg)	Scaling Factor (Power)	1-g Scaled SAR (W/kg)	Plot No.
					Frequency (MHz)	Channel					Conducted Power	Tune-Up Limit				
Rear	LTE 41	1 CC Uplink	20	PCC	2549.50	40185	QPSK	1	0	15mm	27.18	27.50	0.235	1.076	0.253	A59

Cell Phone+ LED Cover WLAN Body Worn SAR

EUT Position	Mode	Antenna Conig	Traffic Channel		Spacing	Power(dBm)		1-g SAR (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty cycle)	1-g Scaled SAR (W/kg)	Plot No.
			Frequency (MHz)	Channel		Conducted Power	Tune-Up Limit					
Rear	802.11b	2	2412.0	1	15mm	20.47	20.50	0.097	1.007	1.008	0.098	A60
Rear	802.11n	2	5270.0	54	15mm	16.67	17.50	0.162	1.211	1.029	0.202	A61
Rear	802.11ac	1	5610.0	122	15mm	16.59	17.50	0.228	1.233	1.047	0.294	A62
Rear	802.11ac	2	5610.0	122	15mm	16.84	17.50	0.244	1.164	1.057	0.300	A62
Rear	802.11ac	1	5775.0	155	15mm	16.67	17.50	0.188	1.211	1.047	0.238	A63

Cell Phone+ LED Cover Bluetooth Body Worn SAR

EUT Position	Mode	Service	Traffic Channel		Spacing	Power(dBm)		1-g SAR (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty cycle)	1-g Scaled SAR (W/kg)	Plot No.
			Frequency (MHz)	Channel		Conducted Power	Tune-Up Limit					
Rear	Bluetooth	FHSS	2441.0	39	15mm	16.40	16.50	0.031	1.023	1.287	0.041	A64

19.3 Hotspot SAR data

Cell Phone+ LED Cover GSM/UMTS/CDMA Hotspot SAR

EUT Position	Mode	Service	Ant State	Traffic Channel		Spacing	Power(dBm)		1-g SAR (W/kg)	Scaling Factor (Power)	1-g Scaled SAR (W/kg)	Plot No
				Frequency (MHz)	Channel		Conducted Power	Tune-Up Limit				
Rear	GSM 850	GPRS 4TX	N/A	836.60	190	10mm	26.85	28.00	0.239	1.303	0.311	A65
Bottom	GSM 1900	GPRS 3TX	N/A	1880.0	661	10mm	21.71	23.00	0.262	1.346	0.353	A66
Rear	UMTS 850	RMC	77	836.6	4183	10mm	24.49	24.80	0.419	1.074	0.450	A67
Bottom	UMTS 1750	RMC	0	1732.4	1412	10mm	19.17	19.50	0.321	1.079	0.346	A68
Bottom	UMTS 1900	RMC	0	1880.0	9400	10mm	18.98	19.50	0.458	1.127	0.516	A69
Rear	CDMA BC10	EVDO Rev.0	8	820.10	564	10mm	25.12	26.00	0.519	1.225	0.636	A70
Rear	CDMA BC0	EVDO Rev.0	8	824.70	1013	10mm	24.53	25.00	0.514	1.114	0.573	A71
Bottom	PCS CDMA	EVDO Rev.0	76	1908.75	1175	10mm	20.11	20.50	0.457	1.094	0.500	A72

Cell Phone+ LED Cover LTE FDD Hotspot SAR

EUT Position	Mode	Bandwidth (MHz)	Ant State	Antenna Conig	Traffic Channel		Modulation	RB Size	RB offset	Spacing	Power(dBm)		1-g SAR (W/kg)	Scaling Factor (Power)	1-g Scaled SAR (W/kg)	Plot No
					Frequency (MHz)	Channel					Conducted Power	Tune-Up Limit				
Rear	LTE 71	20	9	N/A	680.50	133297	QPSK	1	50	10mm	24.59	25.30	0.257	1.178	0.303	A73
Rear	LTE 12	10	2	N/A	707.50	23095	QPSK	1	25	10mm	24.26	25.00	0.333	1.186	0.395	A74
Rear	LTE 13	10	1	N/A	782.00	23230	QPSK	1	0	10mm	24.58	25.00	0.334	1.102	0.368	A75
Rear	LTE 14	10	17	N/A	793.00	23330	QPSK	1	25	10mm	24.57	25.00	0.365	1.104	0.403	A76
Rear	LTE 26	15	26	N/A	831.50	26865	QPSK	1	36	10mm	24.48	25.00	0.452	1.127	0.509	A77
Rear	LTE 5	10	21	N/A	836.50	20525	QPSK	1	0	10mm	24.45	25.00	0.454	1.135	0.515	A78
Bottom	LTE 66	20	0	N/A	1770.00	132572	QPSK	50	0	10mm	19.62	20.00	0.357	1.091	0.389	A79
Bottom	LTE 25	20	0	N/A	1905.00	26590	QPSK	50	0	10mm	19.78	20.00	0.612	1.042	0.638	A80
Bottom	LTE 30	10	N/A	Ant A	2310.00	27710	QPSK	1	0	10mm	19.72	20.00	0.534	1.067	0.570	A81
Bottom	LTE 7	20	N/A	Ant A	2535.00	21100	QPSK	1	0	10mm	20.78	21.00	0.916	1.052	0.964	A82

Cell Phone+ LED Cover LTE TDD Hotspot SAR

EUT Position	Mode	Uplink	Bandwidth (MHz)	Component Carrier	Traffic Channel		Modulation	RB Size	RB offset	Spacing	Power(dBm)		1-g SAR (W/kg)	Scaling Factor (Power)	1-g Scaled SAR (W/kg)	Plot No
					Frequency (MHz)	Channel					Conducted Power	Tune-Up Limit				
Rear	LTE 41	1 CC Uplink	20	PCC	2593.00	40620	QPSK	1	0	10mm	22.73	23.00	0.793	1.064	0.844	A83

Cell Phone+ LED Cover WLAN Hotspot SAR

EUT Position	Mode	Antenna Conig	Traffic Channel		Spacing	Power(dBm)		1-g SAR (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty cycle)	1-g Scaled SAR (W/kg)	Plot No
			Frequency (MHz)	Channel		Conducted Power	Tune-Up Limit					
Top	802.11b	1	2462.00	11	10mm	20.31	20.50	0.243	1.045	1.009	0.256	A84
Rear	802.11ac	1	5775.00	155	10mm	16.67	17.50	0.255	1.211	1.047	0.323	A85

Cell Phone+ LED Cover NII MIMO Hotspot SAR

EUT Position	Mode	Antenna Conig	Traffic Channel		Spacing	Power(dBm)				1-g SAR (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty cycle)	1-g Scaled SAR (W/kg)	Plot No
			Frequency (MHz)	Channel		Conducted Power (Ant1)	Tune-Up Limit	Conducted Power (Ant1)	Tune-Up Limit					
Rear	802.11ac	MIMO	5775.0	155	10mm	16.67	17.50	17.44	17.50	0.204	1.211	1.063	0.263	A86

Cell Phone+ LED Cover Bluetooth Hotspot SAR

EUT Position	Mode	Traffic Channel		Power(dBm)		Spacing	1-g SAR (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty cycle)	1-g Scaled SAR (W/kg)	Plot No
		Frequency (MHz)	Channel	Conducted Power	Tune-Up Limit						
Front	Bluetooth	2441.0	39	16.40	16.50	10 mm	0.067	1.023	1.287	0.088	A87

19.4 Phablet SAR data

Cell Phone+ LED Cover GSM/UMTS/CDMA Phablet SAR

EUT Position	Mode	Service	Ant State	Traffic Channel		Spacing	Power(dBm)		10-g SAR (W/kg)	Scaling Factor (Power)	10-g Scaled SAR (W/kg)	Plot No
				Frequency (MHz)	Channel		Conducted Power	Tune-Up Limit				
Bottom	GSM 1900	GPRS 3TX	N/A	1880.00	661	0mm	23.72	24.50	1.090	1.197	1.305	A88
Bottom	UMTS 1750	RMC	0	1752.60	1513	0mm	21.31	21.50	2.240	1.045	2.341	A89
Rear	UMTS 1750	RMC	0	1732.4	1412	0mm	21.26	21.50	1.220	1.057	1.290	A89
Bottom	UMTS 1900	RMC	0	1852.40	9262	0mm	20.75	21.50	1.660	1.189	1.974	A90
Bottom	PCS CDMA	EVDO Rev.0	76	1851.25	25	0mm	21.30	21.50	2.000	1.047	2.094	A91

Cell Phone+ LED Cover LTE FDD Phablet SAR

EUT Position	Mode	Bandwidth (MHz)	Ant State	Antenna Conig	Traffic Channel		Modulation	RB Size	RB offset	Spacing	Power(dBm)		10-g SAR (W/kg)	Scaling Factor (Power)	10-g Scaled SAR (W/kg)	Plot No
					Frequency (MHz)	Channel					Conducted Power	Tune-Up Limit				
Bottom	LTE 66	20	0	N/A	1770.00	132572	QPSK	50	25	0mm	21.32	21.50	2.700	1.042	2.813	A92
Bottom	LTE 25	20	0	N/A	1882.50	26365	QPSK	1	0	0mm	22.25	22.50	2.100	1.059	2.224	A93
Bottom	LTE 30	10	N/A	Ant B	2310.00	27710	QPSK	25	0	0mm	21.28	21.50	0.983	1.052	1.034	A94
Front	LTE 7	20	N/A	Ant B	2560.00	21350	QPSK	50	0	0mm	20.74	21.00	0.920	1.062	0.977	A95

Cell Phone+ LED Cover LTE TDD Phablet SAR

EUT Position	Mode	Uplink	Bandwidth (MHz)	Component Carrier	Traffic Channel		Modulation	RB Size	RB offset	Spacing	Power(dBm)		10-g SAR (W/kg)	Scaling Factor (Power)	10-g Scaled SAR (W/kg)	Plot No
					Frequency (MHz)	Channel					Conducted Power	Tune-Up Limit				
Rear	LTE 41	1 CC Uplink	20	PCC	2549.50	40185	QPSK	1	0	0mm	27.18	27.50	2.300	1.076	2.475	A96

Cell Phone+ LED Cover WLAN Phablet SAR

EUT Position	Mode	Antenna Conig	Traffic Channel		Spacing	Power(dBm)		10-g SAR (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty cycle)	10-g Scaled SAR (W/kg)	Plot No
			Frequency (MHz)	Channel		Conducted Power	Tune-Up Limit					
Rear	802.11n	1	5270.00	54	0mm	16.60	17.50	0.804	1.230	1.025	1.014	A97
Rear	802.11ac	1	5610.00	122	0mm	16.59	17.50	1.140	1.233	1.047	1.472	A98

19.5 Simultaneous Transmission Scenario for Head SAR Worst Case

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head	GSM 850	0.160	0.463	0.623
	GSM 1900	0.080	0.463	0.543
	UMTS 850	0.210	0.463	0.673
	UMTS 1750	0.130	0.463	0.593
	UMTS 1900	0.110	0.463	0.573
	CDMA BC10 (§90S)	0.280	0.463	0.743
	CDMA BC0 (§22H)	0.260	0.463	0.723
	PCS CDMA	0.090	0.463	0.553
	LTE Band 71	0.110	0.463	0.573
	LTE Band 12	0.140	0.463	0.603
	LTE Band 13	0.170	0.463	0.633
	LTE Band 14	0.150	0.463	0.613
	LTE Band 26 (Cell)	0.200	0.463	0.663
	LTE Band 5 (Cell)	0.200	0.463	0.663
	LTE Band 66 (AWS)	0.130	0.463	0.593
	LTE Band 25 (PCS)	0.090	0.463	0.553
	LTE Band 30	0.050	0.463	0.513
	LTE Band 7	0.080	0.463	0.543
	LTE Band 41	0.050	0.463	0.513

19.6 Simultaneous Transmission Scenario for Body Worn SAR Worst Case

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Body Worn	GSM 850	0.220	0.294	0.300	0.514	0.520	0.814
	GSM 1900	0.250	0.294	0.300	0.544	0.550	0.844
	UMTS 850	0.300	0.294	0.300	0.594	0.600	0.894
	UMTS 1750	0.560	0.294	0.300	0.854	0.860	1.154
	UMTS 1900	0.290	0.294	0.300	0.584	0.590	0.884
	CDMA BC10 (§90S)	0.390	0.294	0.300	0.684	0.690	0.984
	CDMA BC0 (§22H)	0.350	0.294	0.300	0.644	0.650	0.944
	PCS CDMA	0.220	0.294	0.300	0.514	0.520	0.814
	LTE Band 71	0.230	0.294	0.300	0.524	0.530	0.824
	LTE Band 12	0.240	0.294	0.300	0.534	0.540	0.834
	LTE Band 13	0.280	0.294	0.300	0.574	0.580	0.874
	LTE Band 14	0.270	0.294	0.300	0.564	0.570	0.864
	LTE Band 26 (Cell)	0.230	0.294	0.300	0.524	0.530	0.824
	LTE Band 5 (Cell)	0.290	0.294	0.300	0.584	0.590	0.884
	LTE Band 66 (AWS)	0.720	0.294	0.300	1.014	1.020	1.314
	LTE Band 25 (PCS)	0.380	0.294	0.300	0.674	0.680	0.974
	LTE Band 30	0.260	0.294	0.300	0.554	0.560	0.854
	LTE Band 7	0.310	0.294	0.300	0.604	0.610	0.904
	LTE Band 41	0.250	0.294	0.300	0.544	0.550	0.844

19.7 Simultaneous Transmission Scenario for Hotspot SAR Worst Case

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot	GSM 850	0.540	0.263	0.803
	GSM 1900	0.370	0.263	0.633
	UMTS 850	0.610	0.263	0.873
	UMTS 1750	0.410	0.263	0.673
	UMTS 1900	0.560	0.263	0.823
	CDMA BC10 (§90S)	0.830	0.263	1.093
	CDMA BC0 (§22H)	0.720	0.263	0.983
	PCS CDMA	0.860	0.263	1.123
	LTE Band 71	0.400	0.263	0.663
	LTE Band 12	0.400	0.263	0.663
	LTE Band 13	0.590	0.263	0.853
	LTE Band 14	0.580	0.263	0.843
	LTE Band 26 (Cell)	0.670	0.263	0.933
	LTE Band 5 (Cell)	0.670	0.263	0.933
	LTE Band 66 (AWS)	0.640	0.263	0.903
	LTE Band 25 (PCS)	0.780	0.263	1.043
	LTE Band 30	0.580	0.263	0.843
	LTE Band 7	0.990	0.263	1.253
	LTE Band 41	1.040	0.263	1.303

19.8 Simultaneous Transmission Scenario for Phablet SAR Worst Case

Simult	Configuration	UMTS 1750 SAR (W/Kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Back	1.290	1.472	2.762

Appendixes List

Appendix A

- A.1 Verification Test Plots for 750MHz Head
- A.2 Verification Test Plots for 750MHz Body
- A.3 Verification Test Plots for 835MHz Head
- A.4 Verification Test Plots for 835MHz Body
- A.5 Verification Test Plots for 1750MHz Head
- A.6 Verification Test Plots for 1750MHz Body
- A.7 Verification Test Plots for 1900MHz Head
- A.8 Verification Test Plots for 1900MHz Body
- A.9 Verification Test Plots for 2300MHz Head
- A.10 Verification Test Plots for 2300MHz Body
- A.11 Verification Test Plots for 2450MHz Head
- A.12 Verification Test Plots for 2450MHz Body
- A.13 Verification Test Plots for 2600MHz Head
- A.14 Verification Test Plots for 2600MHz Body
- A.15 Verification Test Plots for 5 GHz Head
- A.16 Verification Test Plots for 5 GHz Body
- A.17 SAR Test Plots for Cell Phone+ LED View Cover GSM850 Head
- A.18 SAR Test Plots for Cell Phone+ LED View Cover GSM1900Head
- A.19 SAR Test Plots for Cell Phone+ LED View Cover UMTS 850 Head
- A.20 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1750 Head
- A.21 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1900 Head
- A.22 SAR Test Plots for Cell Phone+ LED View Cover DMCA BC10 Head
- A.23 SAR Test Plots for Cell Phone+ LED View Cover CDMA BC 0 Head
- A.24 SAR Test Plots for Cell Phone+ LED View Cover PCS CDMA Head
- A.25 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 71 Head
- A.26 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 12 Head
- A.27 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 13 Head
- A.28 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 14 Head
- A.29 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 26 Head
- A.30 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 5 Head
- A.31 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 66 Head
- A.32 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 25 Head
- A.33 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 30 Head
- A.34 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 7 Head
- A.35 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 41 Head
- A.36 SAR Test Plots for Cell Phone+ LED View Cover 2.4 GHz WLAN Head
- A.37 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2A Head
- A.38 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2C Head

A.39 SAR Test Plots for Cell Phone+ LED View Cover U-NII-3 Head
A.40 SAR Test Plots for Cell Phone+ LED View Cover Bluetooth Head
A.41 SAR Test Plots for Cell Phone+ LED View Cover GSM 850 Body Worn
A.42 SAR Test Plots for Cell Phone+ LED View Cover GSM 1900 Body Worn
A.43 SAR Test Plots for Cell Phone+ LED View Cover UMTS 850 Body Worn
A.44 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1750 Body worn
A.45 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1900 Body worn
A.46 SAR Test Plots for Cell Phone+ LED View Cover CDMA BC 10 Body worn
A.47 SAR Test Plots for Call Phone + LED View Cover CDMA BC 0 Body worn
A.48 SAR Test Plots for Call Phone + LED View Cover PCS CDMA Body worn
A.49 SAR Test Plots for Call Phone + LED View Cover LTE Band 71 Body worn
A.50 SAR Test Plots for Call Phone + LED View Cover LTE Band 12 Body worn
A.51 SAR Test Plots for Call Phone + LED View Cover LTE Band 13 Body worn
A.52 SAR Test Plots for Call Phone + LED View Cover LTE Band 14 Body worn
A.53 SAR Test Plots for Call Phone + LED View Cover LTE Band 26 Body worn
A.54 SAR Test Plots for Call Phone + LED View Cover LTE Band 5 Body worn
A.55 SAR Test Plots for Call Phone + LED View Cover LTE Band 66 Body worn
A.56 SAR Test Plots for Call Phone + LED View Cover LTE Band 25 Body worn
A.57 SAR Test Plots for Call Phone + LED View Cover LTE Band 30 Body worn
A.58 SAR Test Plots for Call Phone + LED View Cover LTE Band 7 Body worn
A.59 SAR Test Plots for Call Phone + LED View Cover LTE Band 41 Body worn
A.60 SAR Test Plots for Call Phone + LED View Cover 2.4 GHz WLAN Body worn
A.61 SAR Test Plots for Call Phone + LED View Cover U-NII-2A Body worn
A.62 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2C Body worn
A.63 SAR Test Plots for Cell Phone+ LED View Cover U-NII-3 Body worn
A.64 SAR Test Plots for Cell Phone+ LED View Cover Bluetooth Body worn
A.65 SAR Test Plots for Cell Phone+ LED View Cover GSM 850 Hotspot
A.66 SAR Test Plots for Cell Phone+ LED View Cover GSM 1900 Hotspot
A.67 SAR Test Plots for Cell Phone+ LED View Cover UMTS 850 Hotspot
A.68 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1750 Hotspot
A.69 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1900 Hotspot
A.70 SAR Test Plots for Cell Phone+ LED View Cover CDMA BC 10 Hotspot
A.71 SAR Test Plots for Cell Phone+ LED View Cover CDMA BC 0 Hotspot
A.72 SAR Test Plots for Cell Phone+ LED View Cover PCS CDMA Hotspot
A.73 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 71 Hotspot
A.74 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 12 Hotspot
A.75 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 13 Hotspot
A.76 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 14 Hotspot
A.77 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 26 Hotspot

	A.78 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 5 Hotspot A.79 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 66 Hotspot A.80 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 25 Hotspot A.81 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 30 Hotspot A.82 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 7 Hotspot A.83 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 41 Hotspot A.84 SAR Test Plots for Cell Phone+ LED View Cover 2.4 GHz WLAN Hotspot A.85 SAR Test Plots for Cell Phone+ LED View Cover U-NII-3 WLAN Hotspot A.86 SAR Test Plots for Cell Phone+ LED View Cover U-NII-3 MIMO Hotspot A.87 SAR Test Plots for Cell Phone+ LED View Cover Bluetooth Hotspot A.88 SAR Test Plots for Cell Phone+ LED View Cover GSM 1900 Phablet A.89 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1750 Phablet A.90 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1900 Phablet A.91 SAR Test Plots for Cell Phone+ LED View Cover PCS CDMA Phablet A.92 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 66 Phablet A.93 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 25 Phablet A.94 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 30 Phablet A.95 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 7 Phablet A.96 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 41 Phablet A.97 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2A Phablet A.98 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2C Phablet
Appendix B	B.1 Calibration certificate for Probe B.2 Calibration certificate for DAE B.3 Calibration certificate for Dipole

Appendixes List

Appendix A

- A.1 Verification Test Plots for 750MHz Head
- A.2 Verification Test Plots for 750MHz Body
- A.3 Verification Test Plots for 835MHz Head
- A.4 Verification Test Plots for 835MHz Body
- A.5 Verification Test Plots for 1750MHz Head
- A.6 Verification Test Plots for 1750MHz Body
- A.7 Verification Test Plots for 1900MHz Head
- A.8 Verification Test Plots for 1900MHz Body
- A.9 Verification Test Plots for 2300MHz Head
- A.10 Verification Test Plots for 2300MHz Body
- A.11 Verification Test Plots for 2450MHz Head
- A.12 Verification Test Plots for 2450MHz Body
- A.13 Verification Test Plots for 2600MHz Head
- A.14 Verification Test Plots for 2600MHz Body
- A.15 Verification Test Plots for 5 GHz Head
- A.16 Verification Test Plots for 5 GHz Body
- A.17 SAR Test Plots for Cell Phone+ LED View Cover GSM850 Head
- A.18 SAR Test Plots for Cell Phone+ LED View Cover GSM1900Head
- A.19 SAR Test Plots for Cell Phone+ LED View Cover UMTS 850 Head
- A.20 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1750 Head
- A.21 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1900 Head
- A.22 SAR Test Plots for Cell Phone+ LED View Cover DMCA BC10 Head
- A.23 SAR Test Plots for Cell Phone+ LED View Cover CDMA BC 0 Head
- A.24 SAR Test Plots for Cell Phone+ LED View Cover PCS CDMA Head
- A.25 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 71 Head
- A.26 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 12 Head
- A.27 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 13 Head
- A.28 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 14 Head
- A.29 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 26 Head
- A.30 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 5 Head
- A.31 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 66 Head
- A.32 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 25 Head
- A.33 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 30 Head
- A.34 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 7 Head
- A.35 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 41 Head
- A.36 SAR Test Plots for Cell Phone+ LED View Cover 2.4 GHz WLAN Head
- A.37 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2A Head
- A.38 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2C Head

A.39 SAR Test Plots for Cell Phone+ LED View Cover U-NII-3 Head
A.40 SAR Test Plots for Cell Phone+ LED View Cover Bluetooth Head
A.41 SAR Test Plots for Cell Phone+ LED View Cover GSM 850 Body Worn
A.42 SAR Test Plots for Cell Phone+ LED View Cover GSM 1900 Body Worn
A.43 SAR Test Plots for Cell Phone+ LED View Cover UMTS 850 Body Worn
A.44 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1750 Body worn
A.45 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1900 Body worn
A.46 SAR Test Plots for Cell Phone+ LED View Cover CDMA BC 10 Body worn
A.47 SAR Test Plots for Call Phone + LED View Cover CDMA BC 0 Body worn
A.48 SAR Test Plots for Call Phone + LED View Cover PCS CDMA Body worn
A.49 SAR Test Plots for Call Phone + LED View Cover LTE Band 71 Body worn
A.50 SAR Test Plots for Call Phone + LED View Cover LTE Band 12 Body worn
A.51 SAR Test Plots for Call Phone + LED View Cover LTE Band 13 Body worn
A.52 SAR Test Plots for Call Phone + LED View Cover LTE Band 14 Body worn
A.53 SAR Test Plots for Call Phone + LED View Cover LTE Band 26 Body worn
A.54 SAR Test Plots for Call Phone + LED View Cover LTE Band 5 Body worn
A.55 SAR Test Plots for Call Phone + LED View Cover LTE Band 66 Body worn
A.56 SAR Test Plots for Call Phone + LED View Cover LTE Band 25 Body worn
A.57 SAR Test Plots for Call Phone + LED View Cover LTE Band 30 Body worn
A.58 SAR Test Plots for Call Phone + LED View Cover LTE Band 7 Body worn
A.59 SAR Test Plots for Call Phone + LED View Cover LTE Band 41 Body worn
A.60 SAR Test Plots for Call Phone + LED View Cover 2.4 GHz WLAN Body worn
A.61 SAR Test Plots for Call Phone + LED View Cover U-NII-2A Body worn
A.62 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2C Body worn
A.63 SAR Test Plots for Cell Phone+ LED View Cover U-NII-3 Body worn
A.64 SAR Test Plots for Cell Phone+ LED View Cover Bluetooth Body worn
A.65 SAR Test Plots for Cell Phone+ LED View Cover GSM 850 Hotspot
A.66 SAR Test Plots for Cell Phone+ LED View Cover GSM 1900 Hotspot
A.67 SAR Test Plots for Cell Phone+ LED View Cover UMTS 850 Hotspot
A.68 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1750 Hotspot
A.69 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1900 Hotspot
A.70 SAR Test Plots for Cell Phone+ LED View Cover CDMA BC 10 Hotspot
A.71 SAR Test Plots for Cell Phone+ LED View Cover CDMA BC 0 Hotspot
A.72 SAR Test Plots for Cell Phone+ LED View Cover PCS CDMA Hotspot
A.73 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 71 Hotspot
A.74 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 12 Hotspot
A.75 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 13 Hotspot
A.76 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 14 Hotspot
A.77 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 26 Hotspot

	A.78 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 5 Hotspot A.79 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 66 Hotspot A.80 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 25 Hotspot A.81 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 30 Hotspot A.82 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 7 Hotspot A.83 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 41 Hotspot A.84 SAR Test Plots for Cell Phone+ LED View Cover 2.4 GHz WLAN Hotspot A.85 SAR Test Plots for Cell Phone+ LED View Cover U-NII-3 WLAN Hotspot A.86 SAR Test Plots for Cell Phone+ LED View Cover U-NII-3 MIMO Hotspot A.87 SAR Test Plots for Cell Phone+ LED View Cover Bluetooth Hotspot A.88 SAR Test Plots for Cell Phone+ LED View Cover GSM 1900 Phablet A.89 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1750 Phablet A.90 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1900 Phablet A.91 SAR Test Plots for Cell Phone+ LED View Cover PCS CDMA Phablet A.92 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 66 Phablet A.93 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 25 Phablet A.94 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 30 Phablet A.95 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 7 Phablet A.96 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 41 Phablet A.97 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2A Phablet A.98 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2C Phablet
Appendix B	B.1 Calibration certificate for Probe B.2 Calibration certificate for DAE B.3 Calibration certificate for Dipole

Appendix A.1 Verification Test Plots for 750 MHz Head

Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)
 File Name: [750MHz Verification Head 2018_03_31\(1\).da53:0](#)

Input Power : 100 mW

Ambient Temp : 23.4 °C Tissue Temp : 21.0 °C

DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1085

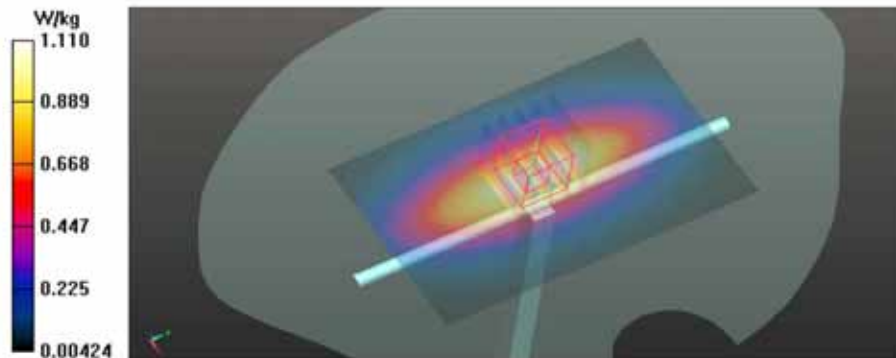
Communication System: UID 0, CW (0); Frequency: 750 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 750$ MHz; $\sigma = 0.927$ S/m; $\epsilon_r = 40.955$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.51, 9.51, 9.51); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/750MHz Verification/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
 Maximum value of SAR (interpolated) = 1.11 W/kg

Verification/750MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Reference Value = 31.07 V/m; Power Drift = 0.06 dB
 Peak SAR (extrapolated) = 1.24 W/kg
SAR(1 g) = 0.858 W/kg; SAR(10 g) = 0.571 W/kg
 Maximum value of SAR (measured) = 1.13 W/kg



Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [750MHz Verification Head 2018_03_31\(2\).da53:0](#)

Input Power : 100 mW

Ambient Temp : 23.4 °C Tissue Temp : 21.0 °C

DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1085

Communication System: UID 0, CW (0); Frequency: 750 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.853 \text{ S/m}$; $\epsilon_r = 42.369$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.51, 9.51, 9.51); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/750MHz Verification/Area Scan (61x101x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 1.14 W/kg

Verification/750MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

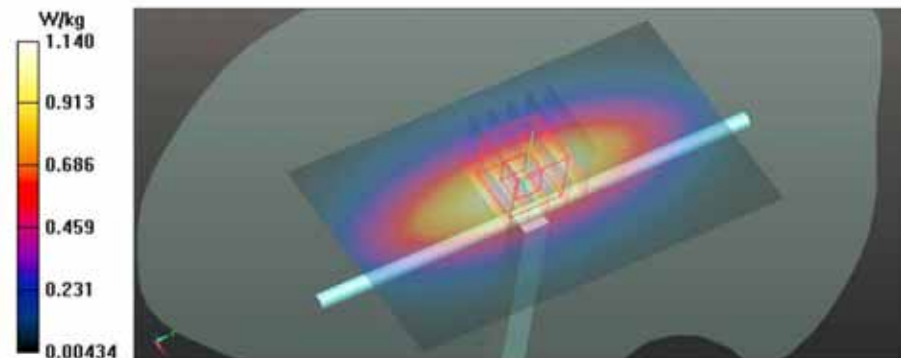
 $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 32.85 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.27 W/kg

SAR(1 g) = 0.882 W/kg; SAR(10 g) = 0.587 W/kg

Maximum value of SAR (measured) = 1.15 W/kg



Appendix A.2 Verification Test Plots for 750 MHz Body

Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [750MHz Verification Body 2018_03_31 \(1\).da53-0](#)

Input Power : 100 mW

Ambient Temp : 23.4 °C Tissue Temp : 21.9 °C

DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1085

Communication System: UID 0, CW (0); Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 750$ MHz; $\sigma = 0.957$ S/m; $\epsilon_r = 55.82$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.19, 9.19, 9.19); Calibrated: 5/31/2017;

- Sensor-Surface: 1.4mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017

- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821

- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/750MHz Verification/Area Scan (61x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.11 W/kg

Verification/750MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

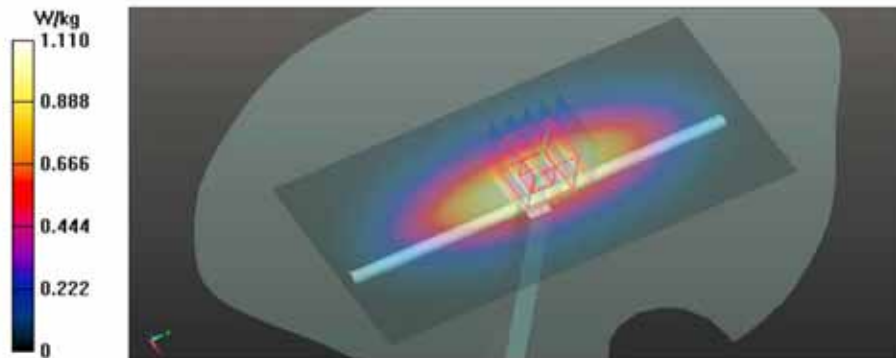
dx=8mm, dy=8mm, dz=5mm

Reference Value = 36.38 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 1.25 W/kg

SAR(1 g) = 0.847 W/kg; SAR(10 g) = 0.567 W/kg

Maximum value of SAR (measured) = 1.12 W/kg



Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [750MHz Verification Body 2018_03_31\(2\).da53.0](#)

Input Power : 100 mW

Ambient Temp : 23.4 °C Tissue Temp : 21.9 °C

DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1085

Communication System: UID 0, CW (0); Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.994 \text{ S/m}$; $\epsilon_r = 55.726$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.19, 9.19, 9.19); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/750MHz Verification/Area Scan (61x131x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 1.15 W/kg

Verification/750MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

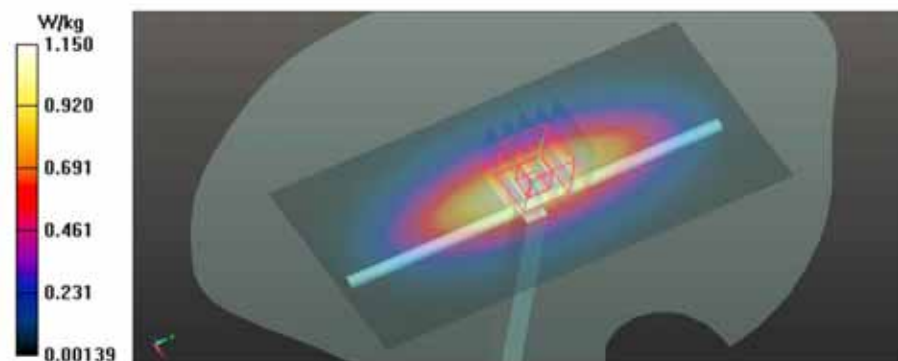
 $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 35.87 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.28 W/kg

SAR(1 g) = 0.877 W/kg; SAR(10 g) = 0.588 W/kg

Maximum value of SAR (measured) = 1.15 W/kg



Appendix A.3 Verification Test Plots for 835 MHz Head

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [835MHz Verification Head 2018_04_02.da53:0](#)

Input Power : 100 mW

Ambient Temp : 22.8 °C Tissue Temp : 21.8 °C

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d138

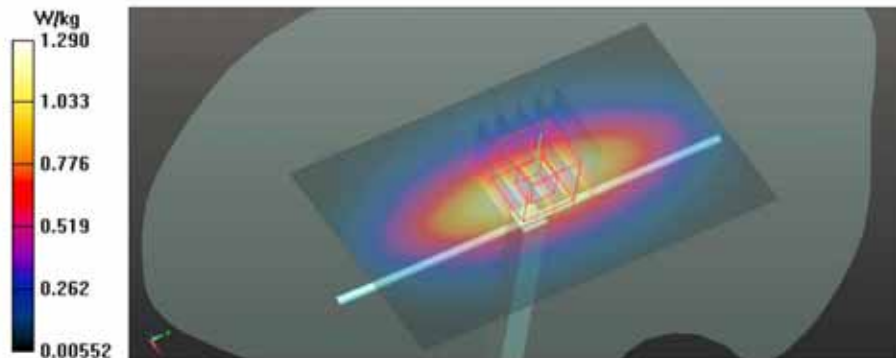
Communication System: UID 0, CW (0); Frequency: 835 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 835$ MHz; $\sigma = 0.894$ S/m; $\epsilon_r = 40.47$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.24, 9.24, 9.24); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/835MHz Verification/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.29 W/kg

Verification/835MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 40.07 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 0.964 W/kg; SAR(10 g) = 0.633 W/kg
Maximum value of SAR (measured) = 1.28 W/kg



Appendix A.4 Verification Test Plots for 835 MHz Body

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [835MHz Verification Body 2018_03_29.da53.0](#)

Input Power : 100 mW

Ambient Temp : 22.9 °C Tissue Temp : 21.7 °C

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d138

Communication System: UID 0, CW (0); Frequency: 835 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 835$ MHz; $\sigma = 0.958$ S/m; $\epsilon_r = 55.464$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(9.83, 9.83, 9.83); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/835MHz Verification Body/Area Scan (61x101x1): Interpolated grid:

$dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.29 W/kg

Verification/835MHz Verification Body/Zoom Scan (5x5x7)/Cube 0: Measurement

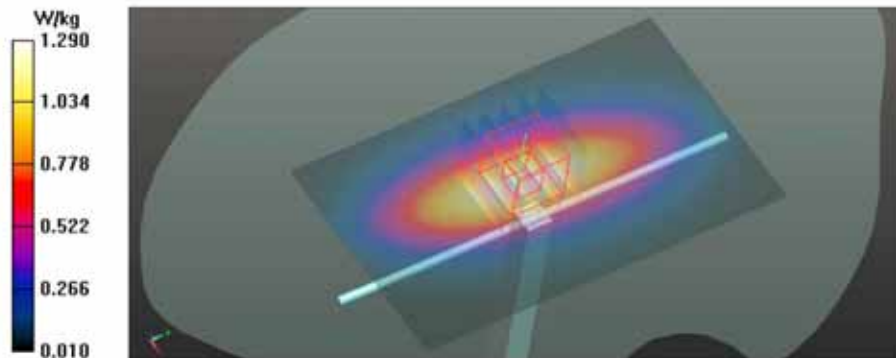
grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 37.35 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.40 W/kg

SAR(1 g) = 0.986 W/kg; SAR(10 g) = 0.666 W/kg

Maximum value of SAR (measured) = 1.27 W/kg



Appendix A.5 Verification Test Plots for 1750 MHz Head

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [1750MHz Verification Head 2018_04_01.da53:0](#)

Input Power : 100 mW

Ambient Temp : 23.7 °C Tissue Temp : 22.0 °C

DUT: Dipole 1750 MHz D1750V2; Type: D1750V2; Serial: D1750V2 - SN:1116

Communication System: UID 0, CW (0); Frequency: 1750 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1750$ MHz; $\sigma = 1.409$ S/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.73, 8.73, 8.73); Calibrated: 2017-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 2017-08-22
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/1750MHz Verification/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 5.38 W/kg

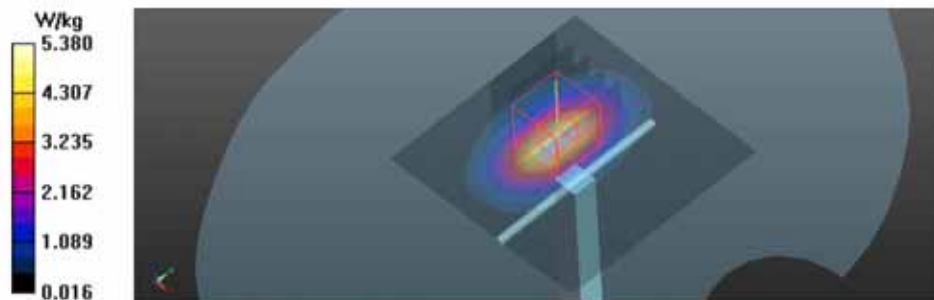
Verification/1750MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 50.03 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 6.76 W/kg

SAR(1 g) = 3.61 W/kg; SAR(10 g) = 1.88 W/kg

Maximum value of SAR (measured) = 5.56 W/kg



Appendix A.6 Verification Test Plots for 1750 MHz Body

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [1750MHz Verification Body 2018_03_29.da53:0](#)

Input Power : 100 mW

Ambient Temp : 22.9 °C Tissue Temp : 21.7 °C

DUT: Dipole 1750 MHz D1750V2; Type: D1750V2; Serial: D1750V2 - SN:1116

Communication System: UID 0, CW (0); Frequency: 1750 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1750$ MHz; $\sigma = 1.511$ S/m; $\epsilon_r = 51.202$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.37, 8.37, 8.37); Calibrated: 2017-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 2017-05-23
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/1750MHz Verification/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 5.71 W/kg

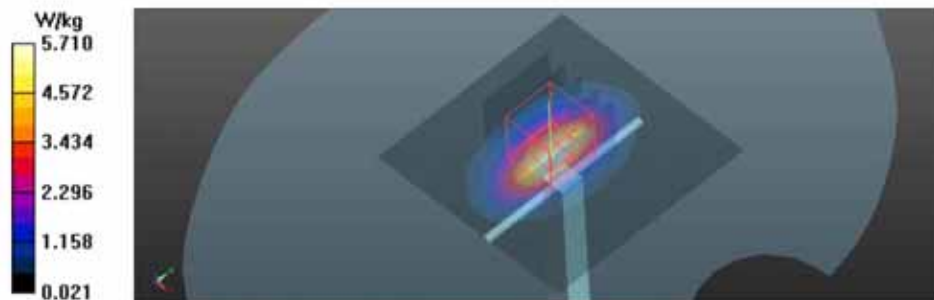
Verification/1750MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 62.20 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 6.59 W/kg

SAR(1 g) = 3.81 W/kg; SAR(10 g) = 2.05 W/kg

Maximum value of SAR (measured) = 5.70 W/kg



Appendix A.7 Verification Test Plots for 1900 MHz Head

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [1900MHz Verification Head 2018_04_01.da53:0](#)

Ambient Temp : 23.7 °C Tissue Temp : 22.0 °C

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:5d033

Communication System: UID 0, CW (0); Frequency: 1900 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1900$ MHz; $\sigma = 1.383$ S/m; $\epsilon_r = 38.091$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.39, 8.39, 8.39); Calibrated: 2017-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 2017-08-22
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/1900MHz Verification/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 5.43 W/kg

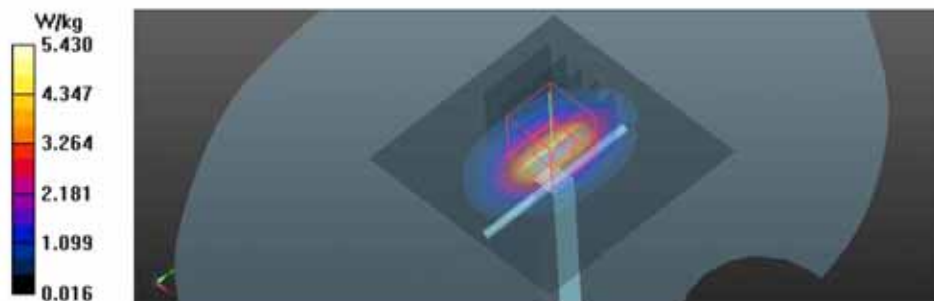
Verification/1900MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 64.48 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 7.02 W/kg

SAR(1 g) = 3.65 W/kg; SAR(10 g) = 1.84 W/kg

Maximum value of SAR (measured) = 5.71 W/kg



Appendix A.8 Verification Test Plots for 1900 MHz Body

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)
 File Name: [1900MHz Verification Body 2018_04_01.da53:0](#)

Input Power : 100 mW

Ambient Temp : 23.7 °C Tissue Temp : 21.9 °C

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:5d033

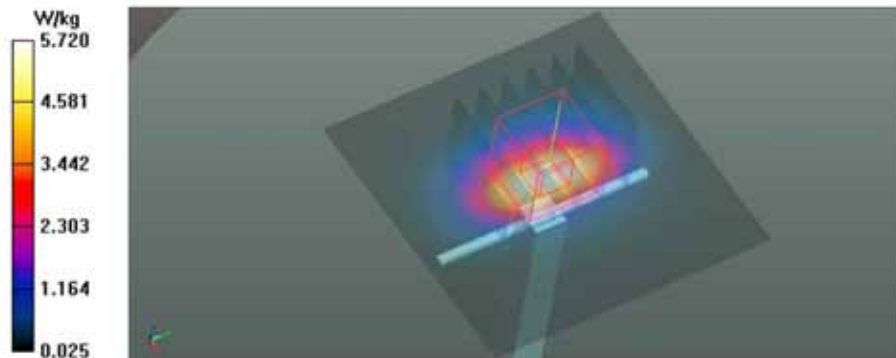
Communication System: UID 0, CW (0); Frequency: 1900 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.511$ S/m; $\epsilon_r = 54.934$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.1, 8.1, 8.1); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/1900MHz Verification/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
 Maximum value of SAR (interpolated) = 5.72 W/kg

Verification/1900MHz Verification/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Reference Value = 61.68 V/m; Power Drift = 0.07 dB
 Peak SAR (extrapolated) = 6.51 W/kg
SAR(1 g) = 3.9 W/kg; SAR(10 g) = 2.12 W/kg
 Maximum value of SAR (measured) = 5.62 W/kg



Appendix A.9 Verification Test Plots for 2300 MHz Head

Date: 2018-03-28

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [2300MHz Verification Head 2018_03_28_da53-0](#)

Input Power : 100 mW

Ambient Temp : 23.4 °C Tissue Temp : 22.1 °C

DUT: Dipole 2300 MHz D2300V2; Type: D2300V3; Serial: D2300V3 - SN:1028

Communication System: UID 0, CW (0); Frequency: 2300 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 2300$ MHz; $\sigma = 1.678$ S/m; $\epsilon_r = 39.669$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(7.22, 7.22, 7.22); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/2300 MHz Verification/Area Scan (61x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 8.04 W/kg

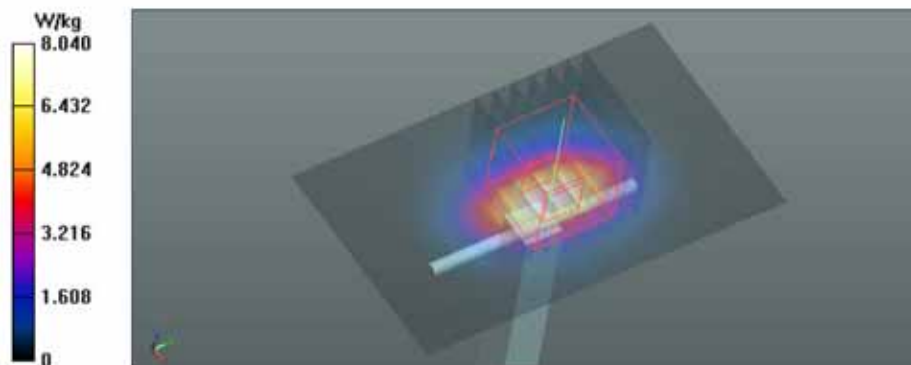
Verification/2300 MHz Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 67.05 V/m; Power Drift = -0.20 dB

Peak SAR (extrapolated) = 9.91 W/kg

SAR(1 g) = 4.62 W/kg; SAR(10 g) = 2.14 W/kg

Maximum value of SAR (measured) = 7.91 W/kg



Appendix A.10 Verification Test Plots for 2300 MHz Body

Date: 2018-03-30

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [2300MHz Verification Body_2018_03_30.da53:0](#)

Input Power : 100 mW

Ambient Temp : 23.1 °C Tissue Temp : 21.7 °C

DUT: Dipole 2300 MHz D2300V2; Type: D2300V3; Serial: D2300V3 - SN:1028

Communication System: UID 0, CW (0); Frequency: 2300 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 2300$ MHz; $\sigma = 1.8$ S/m; $\epsilon_r = 51.94$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3933; ConvF(8.26, 8.26, 8.26); Calibrated: 2017-09-28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 2017-05-23
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/2300MHz Verification/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 7.26 W/kg

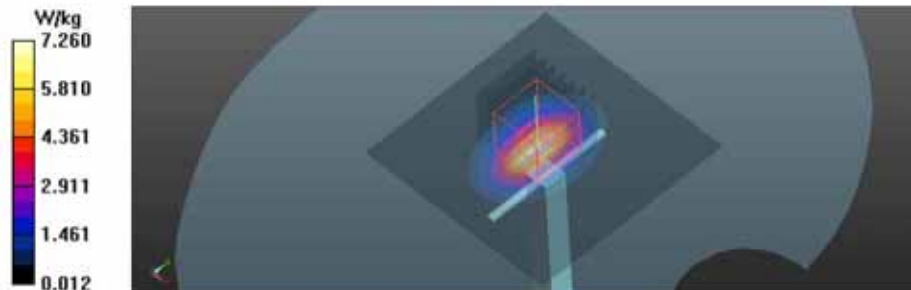
Verification/2300MHz Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 65.31 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 8.75 W/kg

SAR(1 g) = 4.49 W/kg; SAR(10 g) = 2.17 W/kg

Maximum value of SAR (measured) = 7.25 W/kg



Appendix A.11 Verification Test Plots for 2450 MHz Head

Date: 2018-03-28

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [2450MHz Verification Head 2018_03_28.da53.0](#)

Input Power : 100 mW

Ambient Temp : 23.4 °C Tissue Temp : 22.0 °C

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:892

Communication System: UID 0, CW (0); Frequency: 2450 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 2450$ MHz; $\sigma = 1.861$ S/m; $\epsilon_r = 38.639$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(6.88, 6.88, 6.88); Calibrated: 2017-05-31;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 2017-08-22
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446) SEMCAD X 14.6.10(7417)

Verification/2450 MHz Verification/Area Scan (61x81x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 8.74 W/kg

Verification/2450 MHz Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

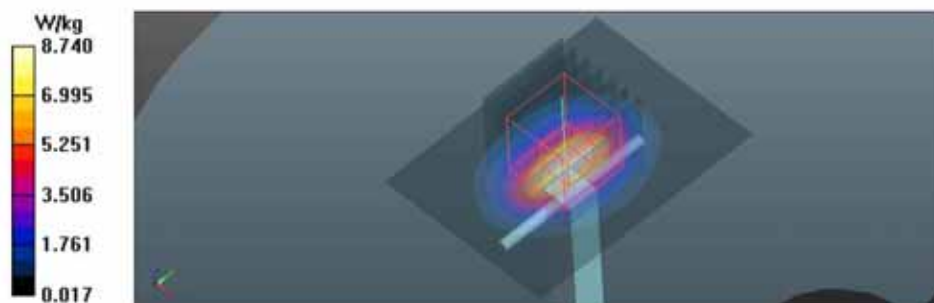
Reference Value = 69.81 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 10.9 W/kg

SAR(1 g) = 4.9 W/kg; SAR(10 g) = 2.21 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 8.50 W/kg



Appendix A.12 Verification Test Plots for 2450 MHz Body

Date: 2018-03-30

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [2450MHz Verification Body_2018_03_30.da53:0](#)

Input Power : 100 mW

Ambient Temp : 23.1 °C Tissue Temp : 21.7 °C

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:892

Communication System: UID 0, CW (0); Frequency: 2450 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 2450$ MHz; $\sigma = 1.938$ S/m; $\epsilon_r = 50.835$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(7.67, 7.67, 7.67); Calibrated: 2017-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 2017-05-23
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/2450MHz Verification Body/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 7.58 W/kg

Verification/2450MHz Verification Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

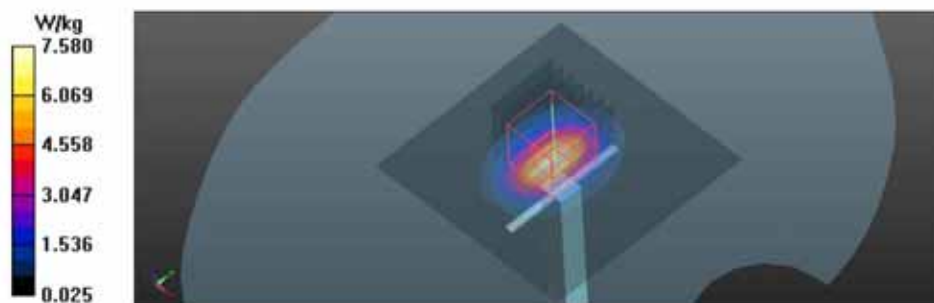
Reference Value = 63.13 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 9.03 W/kg

SAR(1 g) = 4.72 W/kg; SAR(10 g) = 2.27 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 7.55 W/kg



Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)
 File Name: [2450MHz Verification Body 2018_04_02 da53:0](#)

Input Power : 100 mW

Ambient Temp : 22.8 °C Tissue Temp : 21.4 °C

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:892

Communication System: UID 0, CW (0); Frequency: 2450 MHz; Duty Cycle: 1:1
 Medium parameters used (interpolated): $f = 2450$ MHz; $\sigma = 1.993$ S/m; $\epsilon_r = 50.464$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY52 Configuration:

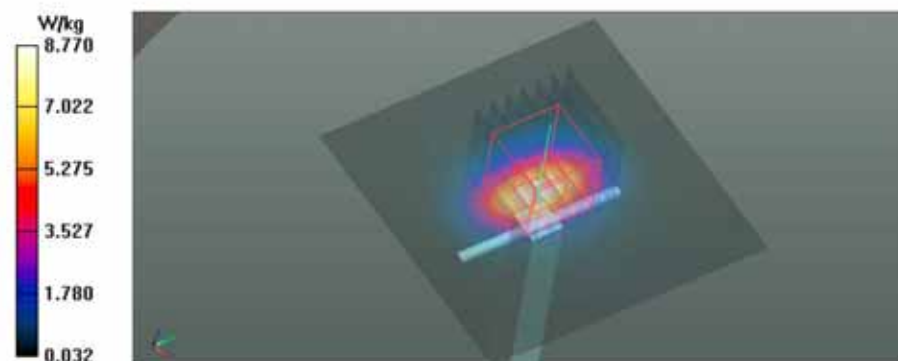
- Probe: EX3DV4 - SN3862; ConvF(7.67, 7.67, 7.67); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/2450MHz Verification Body/Area Scan (91x91x1): Interpolated grid:
 $dx=1.000$ mm, $dy=1.000$ mm

Info: Interpolated medium parameters used for SAR evaluation.
 Maximum value of SAR (interpolated) = 8.77 W/kg

Verification/2450MHz Verification Body/Zoom Scan (7x7x7)/Cube 0: Measurement
 grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm
 Reference Value = 67.30 V/m; Power Drift = -0.00 dB
 Peak SAR (extrapolated) = 10.4 W/kg
SAR(1 g) = 5.26 W/kg; SAR(10 g) = 2.48 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
 Maximum value of SAR (measured) = 8.59 W/kg



Appendix A.13 Verification Test Plots for 2600 MHz Head

Date: 2018-03-28

Test Laboratory : SGS Korea (Gunpo Laboratory)
 File Name: [2600MHz Verification Head 2018_03_28.da53-0](#)

Input Power : 100 mW

Ambient Temp : 23.4 °C Tissue Temp : 22.1 °C

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2; Serial: D2600V2 - SN:1038

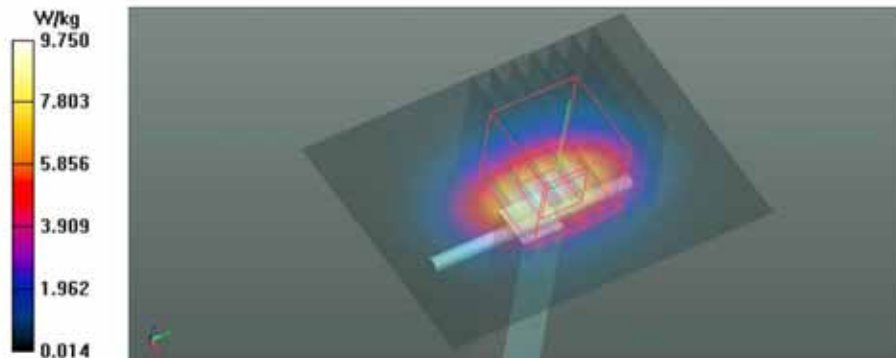
Communication System: UID 0, CW (0); Frequency: 2600 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2600$ MHz; $\sigma = 2.01$ S/m; $\epsilon_r = 38.153$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(6.74, 6.74, 6.74); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/2600 MHz Verification/Area Scan (61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
 Maximum value of SAR (interpolated) = 9.75 W/kg

Verification/2600 MHz Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 69.33 V/m; Power Drift = -0.19 dB
 Peak SAR (extrapolated) = 12.1 W/kg
SAR(1 g) = 5.7 W/kg; SAR(10 g) = 2.64 W/kg
 Maximum value of SAR (measured) = 9.72 W/kg



Appendix A.14 Verification Test Plots for 2600 MHz Body

Date: 2018-03-30

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [2600MHz Verification Body 2018_03_30.da53:0](#)

Input Power : 100 mW

Ambient Temp : 23.1 °C Tissue Temp : 21.8 °C

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2; Serial: D2600V2 - SN:1038

Communication System: UID 0, CW (0); Frequency: 2600 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 2600$ MHz; $\sigma = 2.22$ S/m; $\epsilon_r = 51.735$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(7.51, 7.51, 7.51); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/2600MHz Body Verification/Area Scan (91x91x1): Interpolated grid:

$dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 8.22 W/kg

Verification/2600MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement

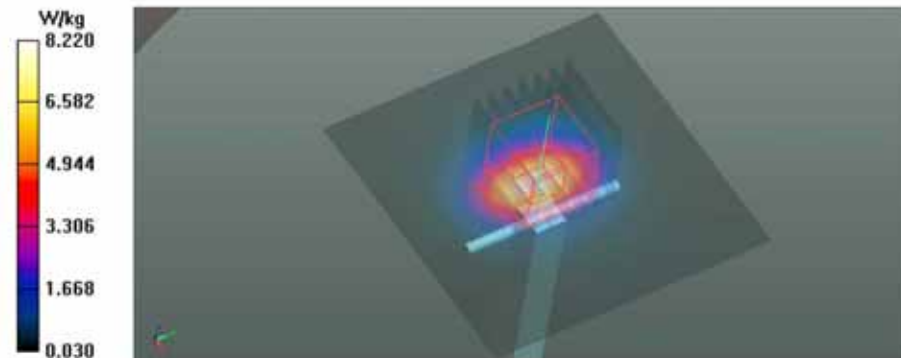
grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 60.31 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 9.96 W/kg

SAR(1 g) = 5.06 W/kg; SAR(10 g) = 2.38 W/kg

Maximum value of SAR (measured) = 8.25 W/kg



Appendix A.15 Verification Test Plots for 5 GHz Head

Date: 2018-04-03

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [5300MHz Verification Head 2018_04_03.da53:0](#)

Input Power : 100 mW

Ambient Temp : 22.5 °C Tissue Temp : 21.8 °C

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1106

Communication System: UID 0, CW (0); Frequency: 5300 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 5300$ MHz; $\sigma = 4.745$ S/m; $\epsilon_r = 35.2$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

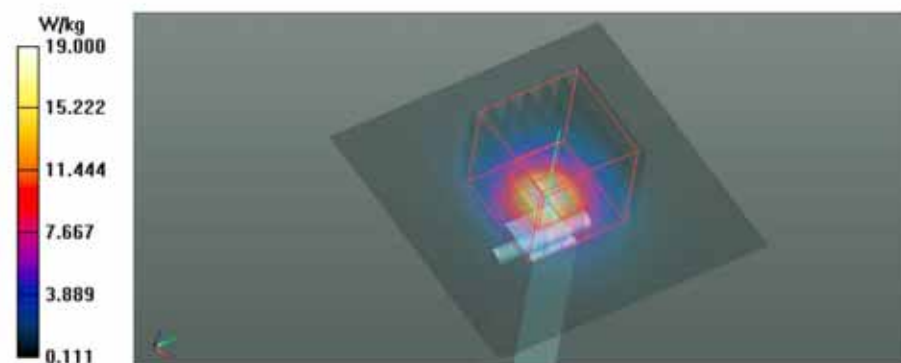
- Probe: EX3DV4 - SN3862; ConvF(5.11, 5.11, 5.11); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/5300MHz Body Verification/Area Scan (61x61x1): Interpolated grid:
dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 19.0 W/kg

Verification/5300MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement
grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 69.83 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 29.2 W/kg
SAR(1 g) = 7.85 W/kg; SAR(10 g) = 2.34 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 19.5 W/kg



Date: 2018-04-03

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [5600MHz Verification Head 2018_04_03.da53:0](#)

Input Power : 100 mW

Ambient Temp : 22.5 °C Tissue Temp : 21.8 °C

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1106

Communication System: UID 0, CW (0); Frequency: 5600 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 5600$ MHz; $\sigma = 5.079$ S/m; $\epsilon_r = 34.143$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(4.78, 4.78, 4.78); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/5600MHz Verification Head/Area Scan (61x61x1): Interpolated grid:

$dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 20.2 W/kg

Verification/5600MHz Verification Head/Zoom Scan (7x7x7)/Cube 0: Measurement

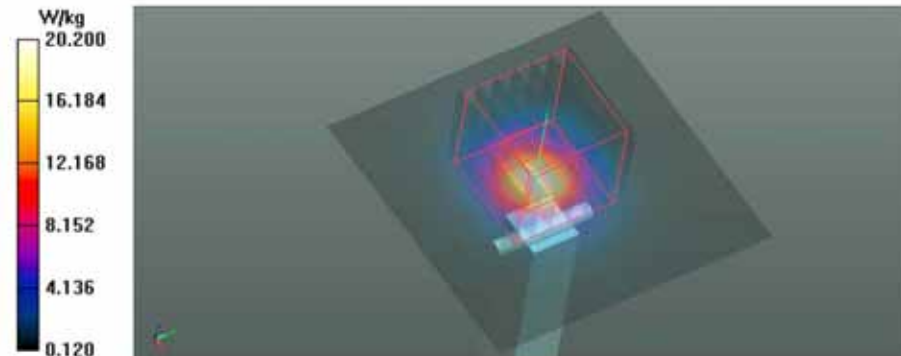
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 66.65 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 32.0 W/kg

SAR(1 g) = 8.11 W/kg; SAR(10 g) = 2.42 W/kg

Maximum value of SAR (measured) = 20.7 W/kg



Date: 2018-04-03

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [5800MHz Verification Head 2018_04_03.da53:0](#)

Input Power : 100 mW

Ambient Temp : 22.5 °C Tissue Temp : 21.8 °C

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1106

Communication System: UID 0, CW (0); Frequency: 5800 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 5800$ MHz; $\sigma = 5.416$ S/m; $\epsilon_r = 34.87$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(4.75, 4.75, 4.75); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/5800MHz Verification Head/Area Scan (61x61x1): Interpolated grid:

$dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 20.2 W/kg

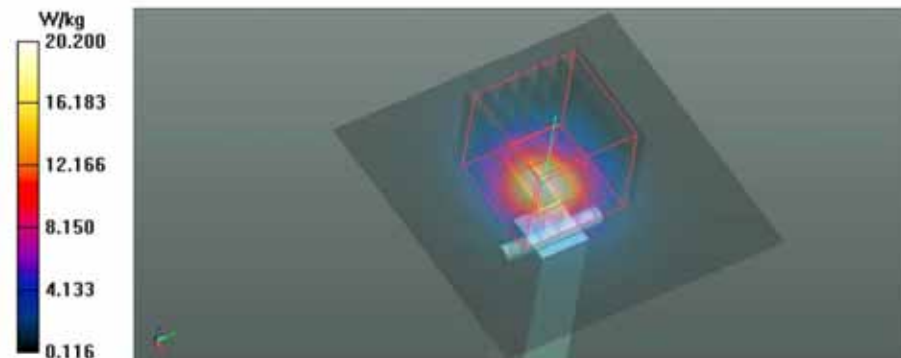
Verification/5800MHz Verification Head/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 64.81 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 33.2 W/kg

SAR(1 g) = 8 W/kg; SAR(10 g) = 2.38 W/kg

Maximum value of SAR (measured) = 20.7 W/kg



Appendix A.16 Verification Test Plots for 5 GHz Body

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [5300MHz Verification Body 2018_04_02 da53:0](#)

Input Power : 100 mW

Ambient Temp : 22.8 °C Tissue Temp : 21.6 °C

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1106

Communication System: UID 0, CW (0); Frequency: 5300 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 5300$ MHz; $\sigma = 5.343$ S/m; $\epsilon_r = 47.145$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

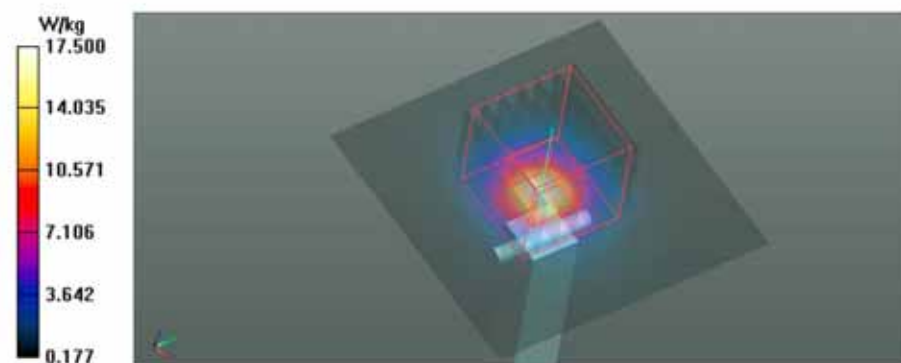
- Probe: EX3DV4 - SN3862; ConvF(4.37, 4.37, 4.37); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/5300MHz Body Verification/Area Scan (61x61x1): Interpolated grid:
dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 17.5 W/kg

Verification/5300MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement
grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 62.84 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 25.4 W/kg
SAR(1 g) = 7.5 W/kg; SAR(10 g) = 2.29 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 17.7 W/kg



Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [5600MHz Verification Body 2018 04 02 da53:0](#)

Input Power : 100 mW

Ambient Temp : 22.8 °C Tissue Temp : 21.6 °C

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1106

Communication System: UID 0, CW (0); Frequency: 5600 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 5600$ MHz; $\sigma = 5.868$ S/m; $\epsilon_r = 46.505$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(3.9, 3.9, 3.9); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/5600MHz Body Verification/Area Scan (61x61x1): Interpolated grid:

$dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 18.8 W/kg

Verification/5600MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement

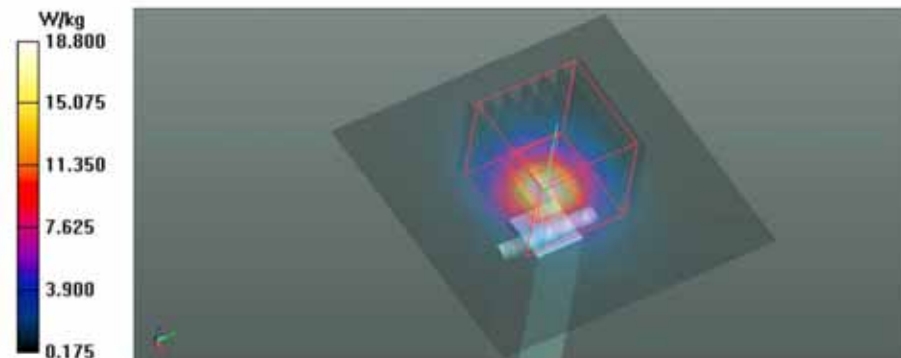
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 63.35 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 27.3 W/kg

SAR(1 g) = 7.67 W/kg; SAR(10 g) = 2.32 W/kg

Maximum value of SAR (measured) = 18.7 W/kg



Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [5800MHz Verification Body 2018_04_02 da53:0](#)

Input Power : 100 mW

Ambient Temp : 22.8 °C Tissue Temp : 21.5 °C

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1106

Communication System: UID 0, CW (0); Frequency: 5800 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 5800$ MHz; $\sigma = 6.061$ S/m; $\epsilon_r = 47.378$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(4.09, 4.09, 4.09); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Verification/5800MHz Body Verification/Area Scan (61x61x1): Interpolated grid:

$dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 19.3 W/kg

Verification/5800MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement

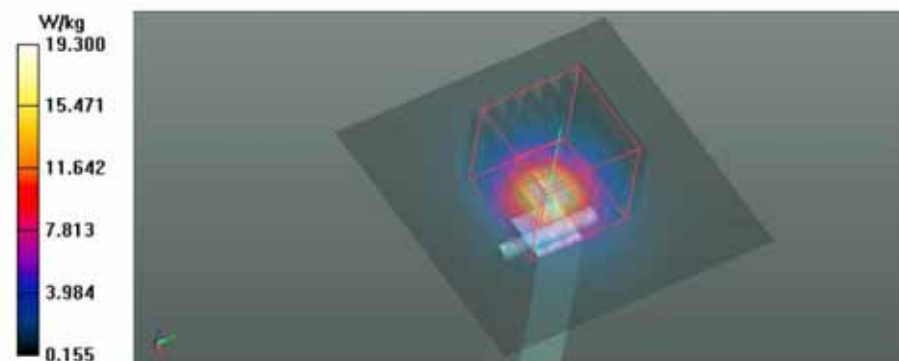
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 62.89 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 28.7 W/kg

SAR(1 g) = 7.61 W/kg; SAR(10 g) = 2.3 W/kg

Maximum value of SAR (measured) = 19.0 W/kg



Appendix A.17 SAR Test Plots for Cell Phone+ LED View Cover GSM 850 Head

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: GSM850_Right Touch_CH190_Head.da53.0

Ambient Temp : 22.8 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, GSM850 (0); Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 837$ MHz; $\sigma = 0.897$ S/m; $\epsilon_r = 40.465$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.24, 9.24, 9.24); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/GSM850_Right Touch_CH190_Head/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.191 W/kg

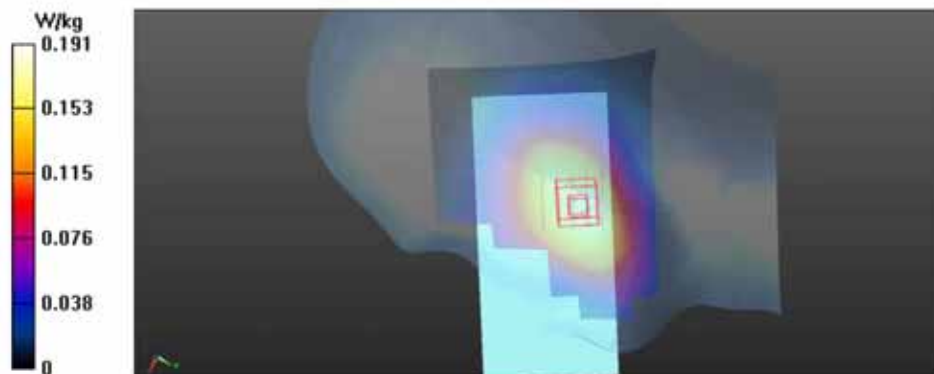
Head/GSM850_Right Touch_CH190_Head/Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.846 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.209 W/kg

SAR(1 g) = 0.156 W/kg; SAR(10 g) = 0.120 W/kg

Maximum value of SAR (measured) = 0.194 W/kg



Appendix A.18 SAR Test Plots for Cell Phone+ LED View Cover GSM 1900 Head

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: GSM1900_Left Touch_CH661_Head.da53:0

Ambient Temp : 23.7 °C Tissue Temp : 22.0 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, GSM1900 (0); Frequency: 1880 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.363$ S/m; $\epsilon_r = 38.122$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.39, 8.39, 8.39); Calibrated: 2017-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 2017-08-22
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/GSM1900_Left Touch_CH661_Head/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0942 W/kg

Head/GSM1900_Left Touch_CH661_Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.077 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.0970 W/kg

SAR(1 g) = 0.069 W/kg; SAR(10 g) = 0.050 W/kg

Maximum value of SAR (measured) = 0.0871 W/kg



Appendix A.19 SAR Test Plots for Cell Phone+ LED View Cover UMTS 850 Head

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: UMTS 850_Right Touch_CH4183_Head.da53:0

Ambient Temp : 22.8 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, WCDMA5 (0); Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.897$ S/m; $\epsilon_r = 40.465$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.24, 9.24, 9.24); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/UMTS 850_Right Touch_CH4183_Head/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.241 W/kg

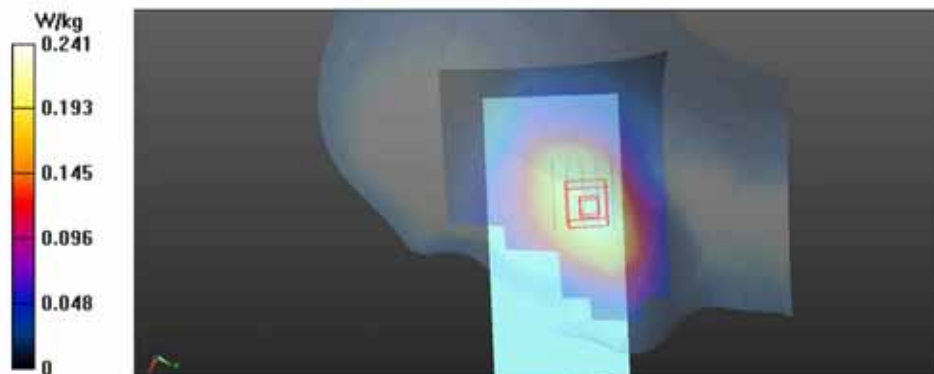
Head/UMTS 850_Right Touch_CH4183_Head/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.839 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.265 W/kg

SAR(1 g) = 0.199 W/kg; SAR(10 g) = 0.153 W/kg

Maximum value of SAR (measured) = 0.246 W/kg



Appendix A.20 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1750 Head

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [UMTS 1750_Left Touch_CH1412_Head.da53-0](#)

Ambient Temp : 23.7 °C Tissue Temp : 22.0 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, WCDMA4 (0); Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.4$ MHz; $\sigma = 1.392$ S/m; $\epsilon_r = 38.451$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.73, 8.73, 8.73); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/UMTS 1750_Left Touch_CH1412_Head/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.153 W/kg

Head/UMTS 1750_Left Touch_CH1412_Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

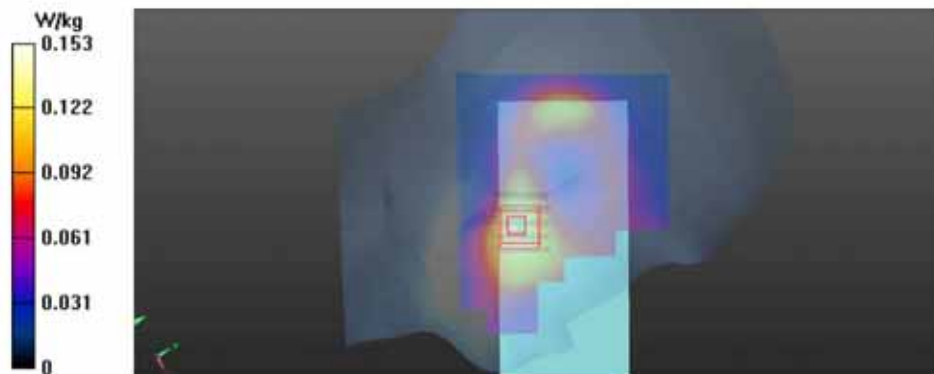
Reference Value = 8.816 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.161 W/kg

SAR(1 g) = 0.112 W/kg; SAR(10 g) = 0.078 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.144 W/kg



Appendix A.21 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1900 Head

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: UMTS 1900_Left Touch_CH9400_Head.da53-0

Ambient Temp : 23.7 °C Tissue Temp : 22.0 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, WCDMA2 (0); Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.363$ S/m; $\epsilon_r = 38.122$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.39, 8.39, 8.39); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/UMTS 1900_Left Touch_CH9400/Area Scan (81x111x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.121 W/kg

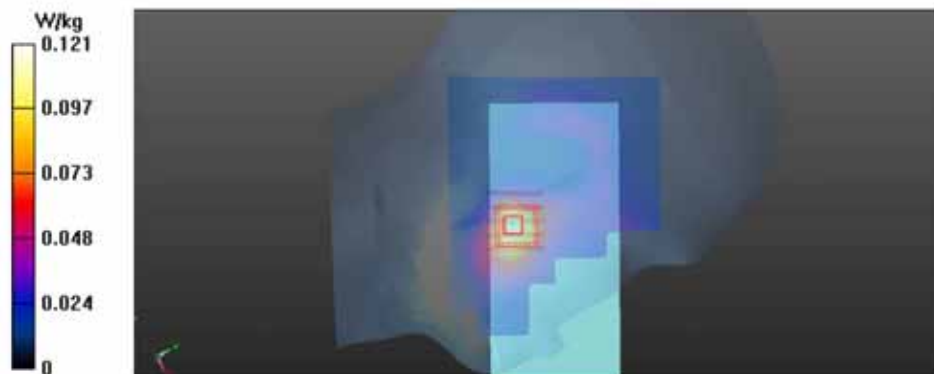
Head/UMTS 1900_Left Touch_CH9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 4.499 V/m; Power Drift = 0.66 dB

Peak SAR (extrapolated) = 0.140 W/kg

SAR(1 g) = 0.083 W/kg; SAR(10 g) = 0.051 W/kg

Maximum value of SAR (measured) = 0.121 W/kg



Appendix A.22 SAR Test Plots for Cell Phone+ LED View Cover DMCA BC10 Head

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [CDMA BC10_Right Touch_CH564_Head.da53-0](#)

Ambient Temp : 22.8 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, CDMA DCN (0); Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 820.1$ MHz; $\sigma = 0.877$ S/m; $\epsilon_r = 40.495$; $\rho = 1000$ kg/m³
Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.24, 9.24, 9.24); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/CDMA BC10_Right Touch_CH564_Head/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.273 W/kg

Head/CDMA BC10_Right Touch_CH564_Head/Zoom Scan (6x5x7)/Cube 0: Measurement grid:

dx=8mm, dy=8mm, dz=5mm

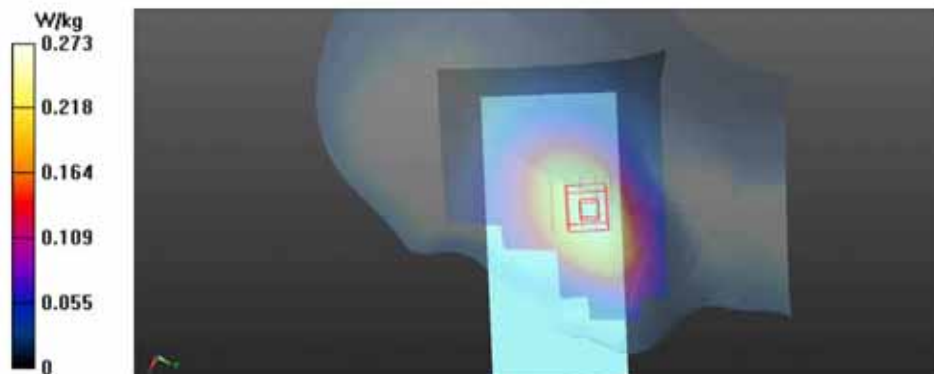
Reference Value = 6.978 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.312 W/kg

SAR(1 g) = 0.229 W/kg; SAR(10 g) = 0.174 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.285 W/kg



Appendix A.23 SAR Test Plots for Cell Phone+ LED View Cover CDMA BC 0 Head

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [CDMA BC0_Right Touch_CH384_Head.da53:0](#)

Ambient Temp : 22.8 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, CDMA DCN (0); Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.897$ S/m; $\epsilon_r = 40.465$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.24, 9.24, 9.24); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/CDMA BC0_Right Touch_CH384_Head/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.287 W/kg

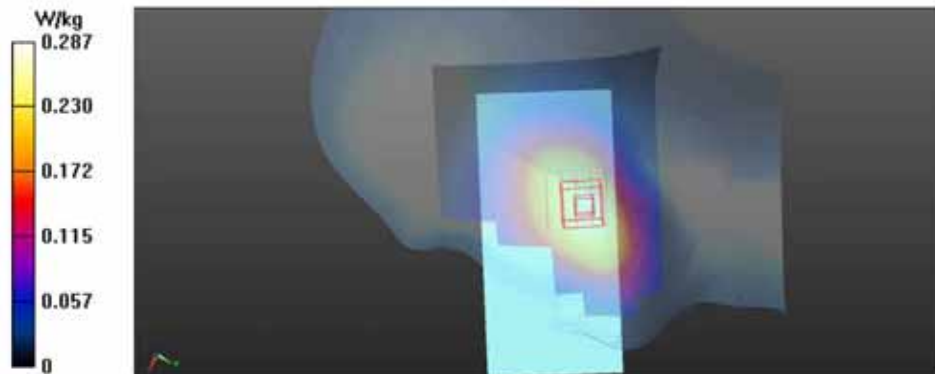
Head/CDMA BC0_Right Touch_CH384_Head/Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.184 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.323 W/kg

SAR(1 g) = 0.239 W/kg; SAR(10 g) = 0.182 W/kg

Maximum value of SAR (measured) = 0.296 W/kg



Appendix A.24 SAR Test Plots for Cell Phone+ LED View Cover PCS CDMA Head

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [PCS CDMA_Left Touch_CH600_Head.da53:0](#)

Ambient Temp : 23.7 °C Tissue Temp : 22.0 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, CDMA PCS 1xRTT/EVDO (0); Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.363$ S/m; $\epsilon_r = 38.122$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.39, 8.39, 8.39); Calibrated: 2017-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 2017-08-22
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/PCS CDMA_Left Touch_CH600_Head/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.155 W/kg

Head/PCS CDMA_Left Touch_CH600_Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.898 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.181 W/kg

SAR(1 g) = 0.102 W/kg; SAR(10 g) = 0.058 W/kg

Maximum value of SAR (measured) = 0.155 W/kg



Appendix A.25 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 71 Head

Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 71_20MHz_1RB_50 Offset_QPSK_Right Touch_CH133297_Head.da53.0](#)

Ambient Temp : 23.4 °C Tissue Temp : 21.0 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 71 (0); Frequency: 680.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 680.5$ MHz; $\sigma = 0.871$ S/m; $\epsilon_r = 41.589$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.51, 9.51, 9.51); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/LTE Band 71_20MHz_1RB_50 Offset_QPSK_Right Touch_CH133297_Head/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.113 W/kg

Head/LTE Band 71_20MHz_1RB_50 Offset_QPSK_Right Touch_CH133297_Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

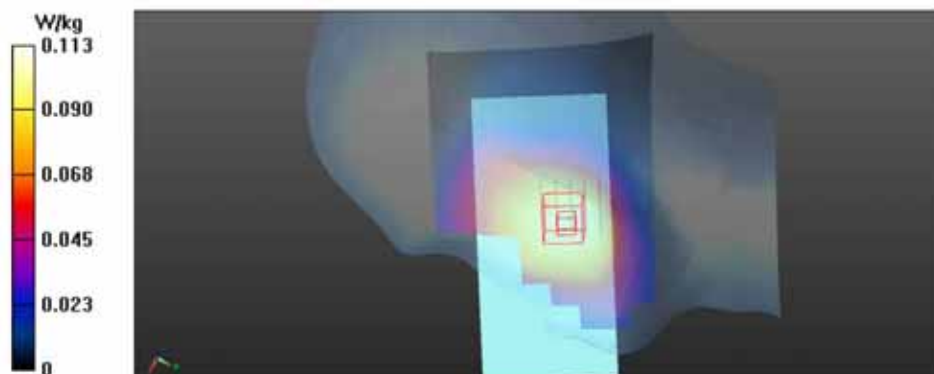
Reference Value = 3.498 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.113 W/kg

SAR(1 g) = 0.097 W/kg; SAR(10 g) = 0.079 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.108 W/kg



Appendix A.26 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 12 Head

Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 12_10MHz_1RB_25 Offset_QPSK_Right Touch_CH23095_Head.da53:0](#)

Ambient Temp : 23.4 °C Tissue Temp : 21.0 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 12 (0); Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 707.5$ MHz; $\sigma = 0.892$ S/m; $\epsilon_r = 41.239$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.51, 9.51, 9.51); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/LTE Band 12_10MHz_1RB_25 Offset_QPSK_Right Touch_CH23095_Head/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.150 W/kg

Head/LTE Band 12_10MHz_1RB_25 Offset_QPSK_Right Touch_CH23095_Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

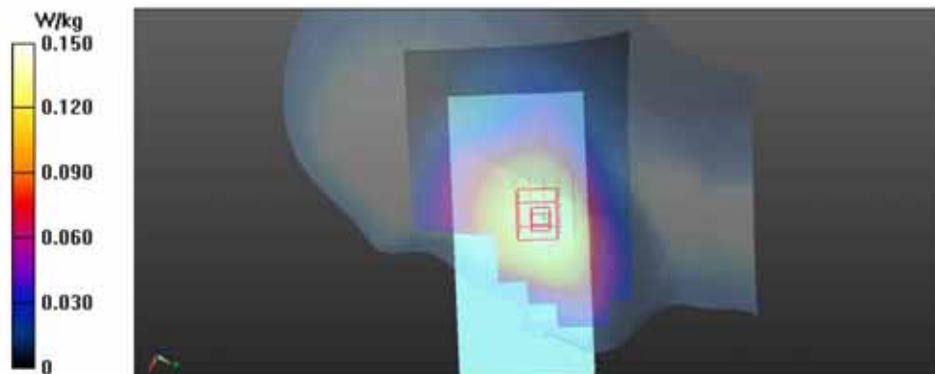
Reference Value = 5.552 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.141 W/kg

SAR(1 g) = 0.121 W/kg; SAR(10 g) = 0.100 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.135 W/kg



Appendix A.27 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 13 Head

Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 13_10MHz_1RB_0 Offset_QPSK_Right Touch_CH23230_Head.da53:0](#)

Ambient Temp : 23.4 °C Tissue Temp : 21.0 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 13 (0); Frequency: 782 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 782$ MHz; $\sigma = 0.884$ S/m; $\epsilon_r = 41.886$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.51, 9.51, 9.51); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/LTE Band 13_10MHz_1RB_0 Offset_QPSK_Right Touch_CH23230_Head/Area Scan

(81x111x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.181 W/kg

Head/LTE Band 13_10MHz_1RB_0 Offset_QPSK_Right Touch_CH23230_Head/Zoom Scan

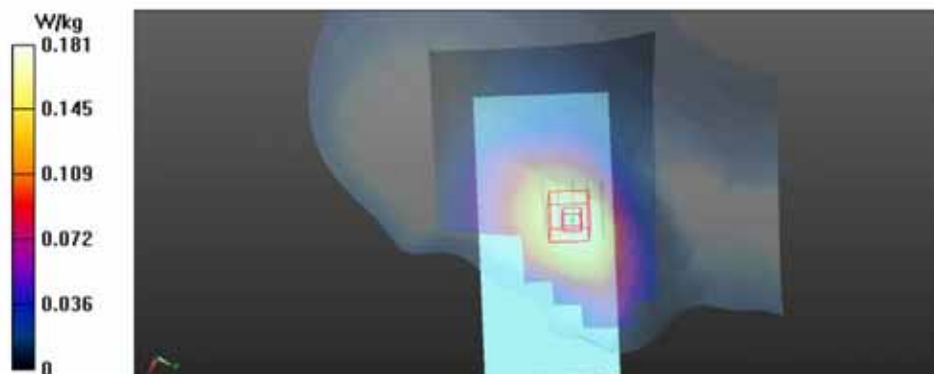
(5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 4.704 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 0.180 W/kg

SAR(1 g) = 0.150 W/kg; SAR(10 g) = 0.117 W/kg

Maximum value of SAR (measured) = 0.171 W/kg



Appendix A.28 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 14 Head

Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 14_10MHz_1RB_25 Offset_QPSK_Right Touch_CH23330_Head.da53:0](#)

Ambient Temp : 23.4 °C Tissue Temp : 21.0 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 14 (0); Frequency: 793 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 793$ MHz; $\sigma = 0.896$ S/m; $\epsilon_r = 41.729$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.51, 9.51, 9.51); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/LTE Band 14_10MHz_1RB_25 Offset_QPSK_Right Touch_CH23330_Head/Area Scan

(81x111x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.163 W/kg

Head/LTE Band 14_10MHz_1RB_25 Offset_QPSK_Right Touch_CH23330_Head/Zoom Scan

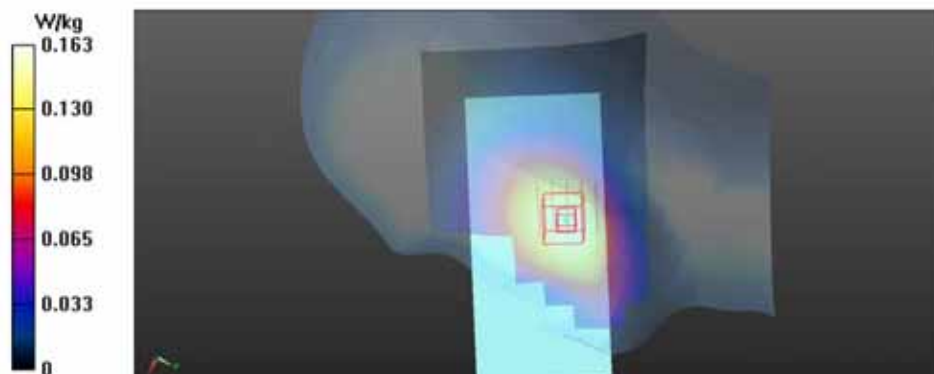
(5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 4.356 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.166 W/kg

SAR(1 g) = 0.137 W/kg; SAR(10 g) = 0.107 W/kg

Maximum value of SAR (measured) = 0.157 W/kg



Appendix A.29 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 26 Head

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 26_15MHz_1RB_36 Offset_QPSK_Right Touch_CH26865_Head.da53:0](#)

Ambient Temp : 22.8 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 26 (0); Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 831.5$ MHz; $\sigma = 0.89$ S/m; $\epsilon_r = 40.475$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.24, 9.24, 9.24); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/LTE Band 26_15MHz_1RB_36 Offset_QPSK_Right Touch_CH26865_Head/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.211 W/kg

Head/LTE Band 26_15MHz_1RB_36 Offset_QPSK_Right Touch_CH26865_Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

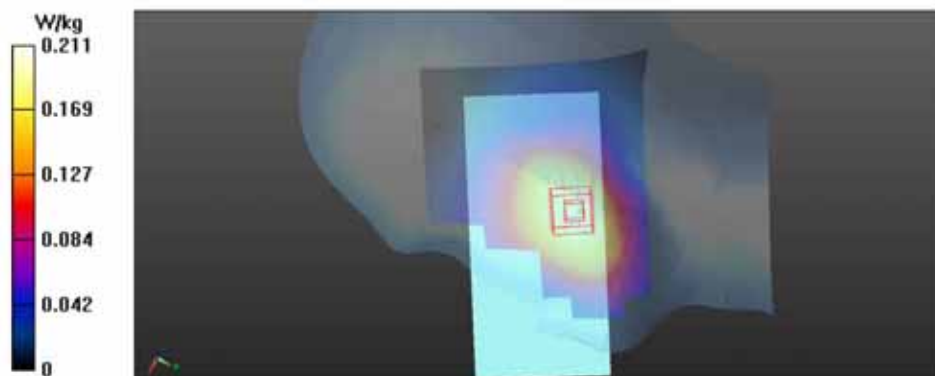
Reference Value = 5.435 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.233 W/kg

SAR(1 g) = 0.176 W/kg; SAR(10 g) = 0.136 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.213 W/kg



Appendix A.30 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 5 Head

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 5_10MHz_1RB_0 Offset_QPSK_Right Touch_CH20525_Head.da53-0](#)

Ambient Temp : 22.8 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 5 (0); Frequency: 836.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.5$ MHz; $\sigma = 0.896$ S/m; $\epsilon_r = 40.466$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.24, 9.24, 9.24); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/LTE Band 5_10MHz_1RB_0 Offset_QPSK_Right Touch_CH20525_Head/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.213 W/kg

Head/LTE Band 5_10MHz_1RB_0 Offset_QPSK_Right Touch_CH20525_Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

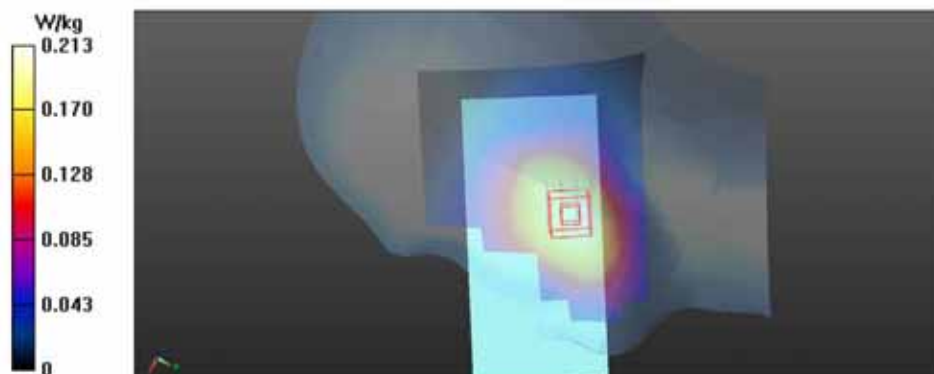
Reference Value = 5.386 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.233 W/kg

SAR(1 g) = 0.177 W/kg; SAR(10 g) = 0.138 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.215 W/kg



Appendix A.31 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 66 Head

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 66_20MHz_1RB_0 Offset_QPSK_Left Touch_CH132572_Head.da53:0](#)

Ambient Temp : 23.7 °C Tissue Temp : 22.0 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 66 (0); Frequency: 1770 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1770$ MHz; $\sigma = 1.426$ S/m; $\epsilon_r = 38.342$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.73, 8.73, 8.73); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 8/22/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/LTE Band 66_20MHz_1RB_0 Offset_QPSK_Left Touch_CH132572_Head/Area Scan

(81x111x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.154 W/kg

Head/LTE Band 66_20MHz_1RB_0 Offset_QPSK_Left Touch_CH132572_Head/Zoom Scan

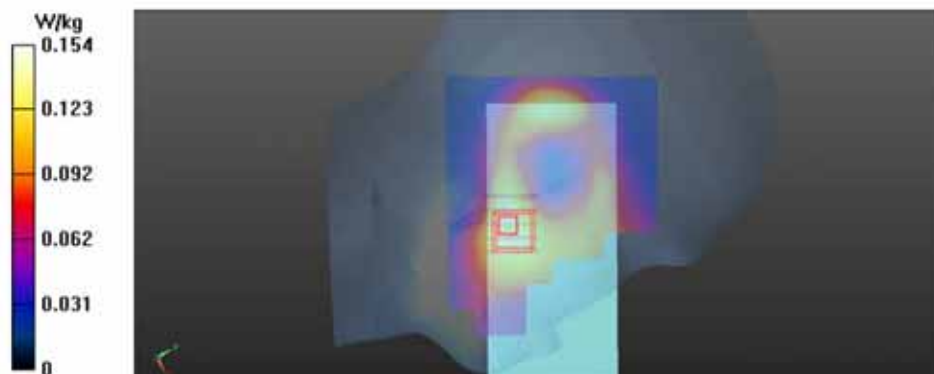
(5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 9.532 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.158 W/kg

SAR(1 g) = 0.110 W/kg; SAR(10 g) = 0.078 W/kg

Maximum value of SAR (measured) = 0.142 W/kg



Appendix A.32 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 25 Head

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 25_20MHz_1RB_0 Offset_QPSK_Left Touch_CH26365_Head.da53:0](#)

Ambient Temp : 23.7 °C Tissue Temp : 22.0 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 25 (0); Frequency: 1882.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1882.5$ MHz; $\sigma = 1.366$ S/m; $\epsilon_r = 38.117$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.39, 8.39, 8.39); Calibrated: 2017-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 2017-08-22
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/LTE Band 25_20MHz_1RB_0 Offset_QPSK_Left Touch_CH26365_Head/Area Scan (81x111x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.120 W/kg

Head/LTE Band 25_20MHz_1RB_0 Offset_QPSK_Left Touch_CH26365_Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 4.999 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.138 W/kg

SAR(1 g) = 0.084 W/kg; SAR(10 g) = 0.053 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.118 W/kg



Appendix A.33 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 30 Head

Date: 2018-03-28

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 30_10MHz_1RB_49 Offset_QPSK_Right Touch_CH27710_Head.da53:0](#)

Ambient Temp : 23.4 °C Tissue Temp : 22.1 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 30 (0); Frequency: 2310 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2310$ MHz; $\sigma = 1.689$ S/m; $\epsilon_r = 39.639$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(7.22, 7.22, 7.22); Calibrated: 2017-05-31;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 2017-08-22
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/LTE Band 30_10MHz_1RB_49 Offset_QPSK_Right Touch_CH27710/Area Scan (111x141x1):

Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.0777 W/kg

Head/LTE Band 30_10MHz_1RB_49 Offset_QPSK_Right Touch_CH27710/Zoom Scan (7x7x7)/Cube

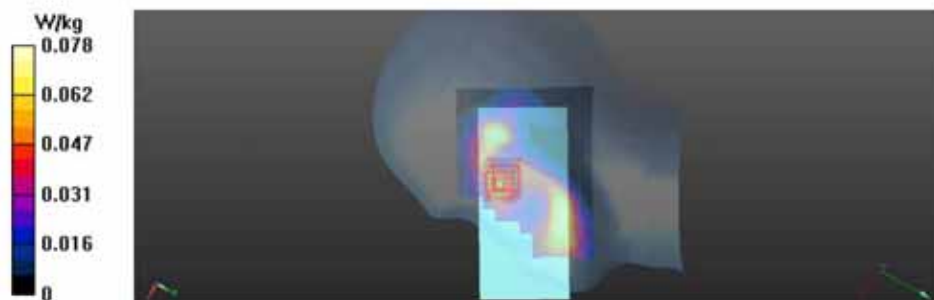
0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 2.966 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.0870 W/kg

SAR(1 g) = 0.050 W/kg; SAR(10 g) = 0.026 W/kg

Maximum value of SAR (measured) = 0.0738 W/kg



Appendix A.34 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 7 Head

Date: 2018-03-28

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 7_20MHz_1RB_0 Offset_QPSK_Left Touch_CH21100_Head da53-0](#)

Ambient Temp : 23.4 °C Tissue Temp : 22.1 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 7 (0); Frequency: 2535 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2535$ MHz; $\sigma = 1.934$ S/m; $\epsilon_r = 38.377$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(6.74, 6.74, 6.74); Calibrated: 2017-05-31;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 2017-08-22
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/LTE Band 7_20MHz_1RB_0 Offset_QPSK_Left Touch_CH21100/Area Scan (111x141x1):

Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.121 W/kg

Head/LTE Band 7_20MHz_1RB_0 Offset_QPSK_Left Touch_CH21100/Zoom Scan (7x7x7)/Cube 0:

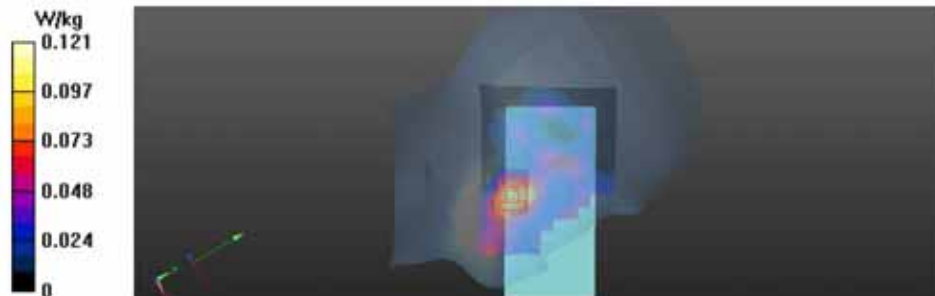
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 4.117 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.133 W/kg

SAR(1 g) = 0.074 W/kg; SAR(10 g) = 0.041 W/kg

Maximum value of SAR (measured) = 0.109 W/kg



Appendix A.35 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 41 Head

Date: 2018-03-28

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 41_20MHz_1RB_0 Offset_QPSK_Left Touch_CH40185_Head.da53:0](#)

Ambient Temp : 23.4 °C Tissue Temp : 22.1 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 41 (0); Frequency: 2549.5 MHz; Duty Cycle: 1:1.57979

Medium parameters used (interpolated): $f = 2549.5$ MHz; $\sigma = 1.952$ S/m; $\epsilon_r = 38.323$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(6.74, 6.74, 6.74); Calibrated: 2017-05-31;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 2017-08-22
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/LTE Band 41_20MHz_1RB_0 Offset_QPSK_Left Touch_CH40185/Area Scan (111x141x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.0780 W/kg

Head/LTE Band 41_20MHz_1RB_0 Offset_QPSK_Left Touch_CH40185/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.701 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.0880 W/kg

SAR(1 g) = 0.048 W/kg; SAR(10 g) = 0.025 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.0730 W/kg



Appendix A.36 SAR Test Plots for Cell Phone+ LED View Cover 2.4 GHz WLAN Head

Date: 2018-03-28

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [WLAN_802.11b_Right Touch_CH11_Ant1_Head.da53:0](#)

Ambient Temp : 23.4 °C Tissue Temp : 22.0 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, WLAN 2.45GHz (0); Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.873$ S/m; $\epsilon_r = 38.603$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(6.88, 6.88, 6.88); Calibrated: 2017-05-31;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 2017-08-22
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/WLAN_802.11b_Right Touch_CH11_Ant1/Area Scan (111x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.198 W/kg

Head/WLAN_802.11b_Right Touch_CH11_Ant1/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.859 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.251 W/kg

SAR(1 g) = 0.120 W/kg; SAR(10 g) = 0.054 W/kg

Maximum value of SAR (measured) = 0.197 W/kg



Appendix A.37 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2A Head

Date: 2018-04-03

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [5.3GHz WLAN_802.11ac_VHT80_Right Touch_CH58_Ant2_Head.da53:0](#)

Ambient Temp : 22.5 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, 5GHz WLAN (0); Frequency: 5290 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 5290$ MHz; $\sigma = 4.72$ S/m; $\epsilon_r = 35.19$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(5.11, 5.11, 5.11); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/5.3GHz_WLAN_802.11ac_VHT80_Right Touch_CH58_Ant2_Head/Area Scan (111x141x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.296 W/kg

Head/5.3GHz_WLAN_802.11ac_VHT80_Right Touch_CH58_Ant2_Head/Zoom Scan (9x9x7)/Cube

0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 4.069 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.626 W/kg

SAR(1 g) = 0.158 W/kg; SAR(10 g) = 0.101 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.324 W/kg



Appendix A.38 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2C Head

Date: 2018-04-03

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [5.6GHz WLAN 802.11ac VHT80 Right Touch CH122 Ant2 Head.da53.0](#)

Ambient Temp : 22.5 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, 5GHz WLAN (0); Frequency: 5610 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 5610$ MHz; $\sigma = 5.098$ S/m; $\epsilon_r = 34.123$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(4.78, 4.78, 4.78); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/5.6GHz WLAN 802.11ac VHT80 Right Touch CH122 Ant2 Head/Area Scan (111x121x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.478 W/kg

Head/5.6GHz WLAN 802.11ac VHT80 Right Touch CH122 Ant2 Head/Zoom Scan

(8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 4.440 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.15 W/kg

SAR(1 g) = 0.220 W/kg; SAR(10 g) = 0.123 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.459 W/kg



Appendix A.39 SAR Test Plots for Cell Phone+ LED View Cover U-NII-3 Head

Date: 2018-04-03

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [5.8GHz WLAN 802.11ac VHT80 Right Touch CH155 Ant2 Head.da53.0](#)

Ambient Temp : 22.5 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, 5GHz WLAN (0); Frequency: 5775 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5775$ MHz; $\sigma = 5.359$ S/m; $\epsilon_r = 34.884$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(4.75, 4.75, 4.75); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/5.8GHz WLAN 802.11ac VHT80 Right Touch CH155 Ant2 Head/Area Scan (111x121x1):

Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.502 W/kg

Head/5.8GHz WLAN 802.11ac VHT80 Right Touch CH155 Ant2 Head/Zoom Scan

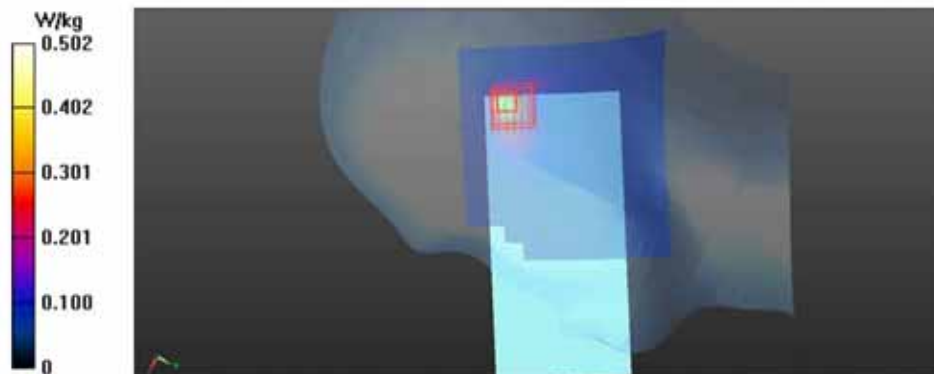
(8x8x7)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 4.326 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 1.30 W/kg

SAR(1 g) = 0.268 W/kg; SAR(10 g) = 0.142 W/kg

Maximum value of SAR (measured) = 0.605 W/kg



Appendix A.40 SAR Test Plots for Cell Phone+ LED View Cover Bluetooth Head

Date: 2018-03-28

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [Bluetooth_GFSK_DH5_Right Touch_CH39_Head.da53:0](#)

Ambient Temp : 23.4 °C Tissue Temp : 22.0 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, Bluetooth (0); Frequency: 2441 MHz; Duty Cycle: 1:1.31432

Medium parameters used (interpolated): $f = 2441$ MHz; $\sigma = 1.851$ S/m; $\epsilon_r = 38.666$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(6.88, 6.88, 6.88); Calibrated: 2017-05-31;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1507; Calibrated: 2017-08-22
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Head/Bluetooth_GFSK_DH5_Right Touch_CH39/Area Scan (111x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.591 W/kg

Head/Bluetooth_GFSK_DH5_Right Touch_CH39/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.85 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.815 W/kg

SAR(1 g) = 0.352 W/kg; SAR(10 g) = 0.166 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.616 W/kg



Appendix A.41 SAR Test Plots for Cell Phone+ LED View Cover GSM 850 Body Worn

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [GPRS 850_Rear_CH190_1TX_Body Worn.da53:0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, GPRS850 1TX (0); Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 837$ MHz; $\sigma = 0.96$ S/m; $\epsilon_r = 55.447$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(9.83, 9.83, 9.83); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/GPRS 850_Rear_CH190_1TX_Body Worn/Area Scan (71x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.260 W/kg

Body/GPRS 850_Rear_CH190_1TX_Body Worn/Zoom Scan (5x6x7)/Cube 0: Measurement grid:

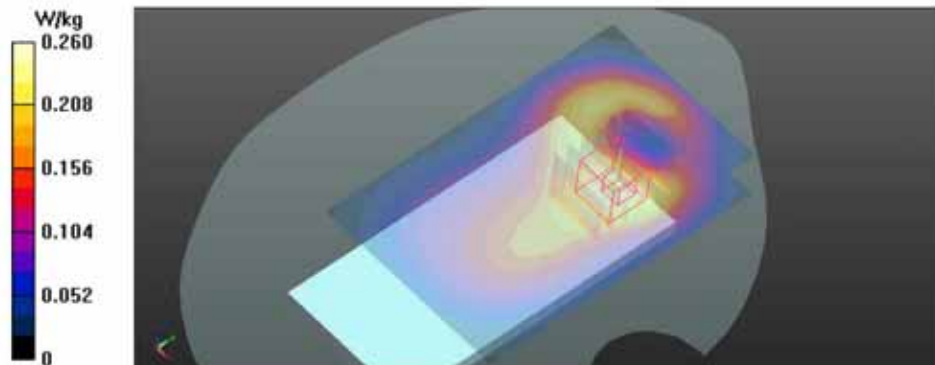
dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.43 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.274 W/kg

SAR(1 g) = 0.209 W/kg; SAR(10 g) = 0.152 W/kg

Maximum value of SAR (measured) = 0.249 W/kg



Appendix A.42 SAR Test Plots for Cell Phone+ LED View Cover GSM 1900 Body Worn

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [GPRS 1900 Rear CH661 1TX Body Worn.da53.0](#)

Ambient Temp : 23.7 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, GPRS1900 1TX (0); Frequency: 1880 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.49$ S/m; $\epsilon_r = 54.995$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.1, 8.1, 8.1); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/GPRS 1900_Rear_CH661_1TX_Body Worn/Area Scan (71x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.360 W/kg

Body/GPRS 1900_Rear_CH661_1TX_Body Worn/Zoom Scan (6x6x7)/Cube 0: Measurement grid:

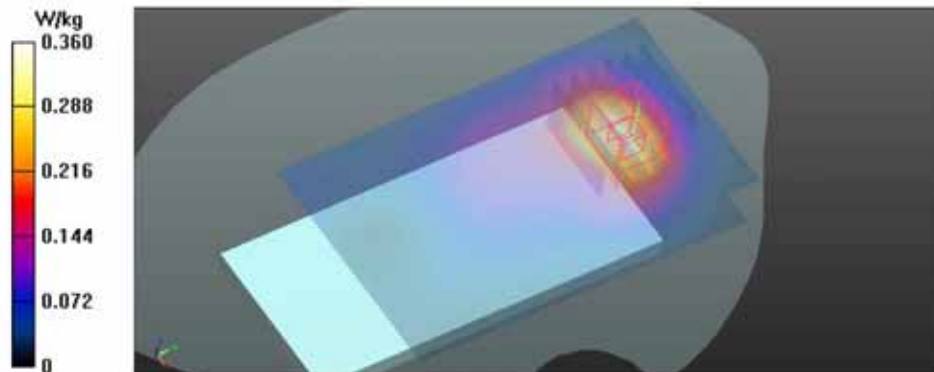
dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.371 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.290 W/kg

SAR(1 g) = 0.205 W/kg; SAR(10 g) = 0.137 W/kg

Maximum value of SAR (measured) = 0.262 W/kg



Appendix A.43 SAR Test Plots for Cell Phone+ LED View Cover UMTS 850 Body Worn

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: UMTS850_Rear_CH4183_Body Worn.da53.0

Ambient Temp : 22.9 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, WCDMA5 (0); Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.96$ S/m; $\epsilon_r = 55.447$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(9.83, 9.83, 9.83); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/UMTS850_Rear_CH4183_Body Worn/Area Scan (71x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.356 W/kg

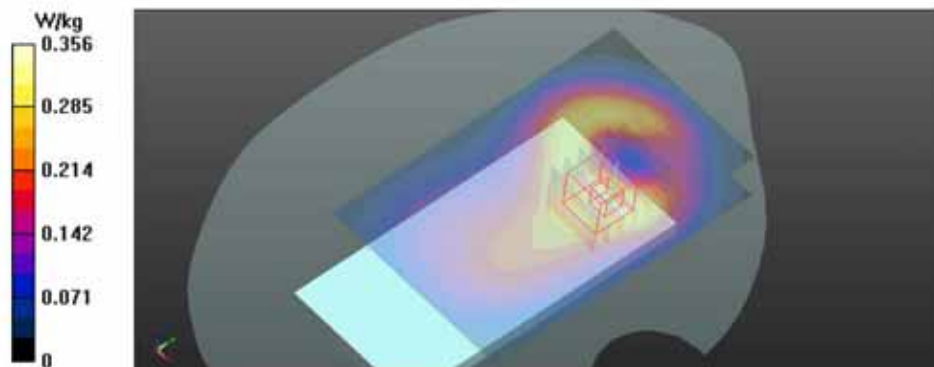
Body/UMTS850_Rear_CH4183_Body Worn/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.38 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.366 W/kg

SAR(1 g) = 0.280 W/kg; SAR(10 g) = 0.203 W/kg

Maximum value of SAR (measured) = 0.338 W/kg



Appendix A.44 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1750 Body worn

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [UMTS1750_Rear_CH1513_Body Worn.da53:0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, WCDMA 4 (0); Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1753$ MHz; $\sigma = 1.514$ S/m; $\epsilon_r = 51.192$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.37, 8.37, 8.37); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/UMTS1750_Rear_CH1513_Body Worn/Area Scan (71x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.674 W/kg

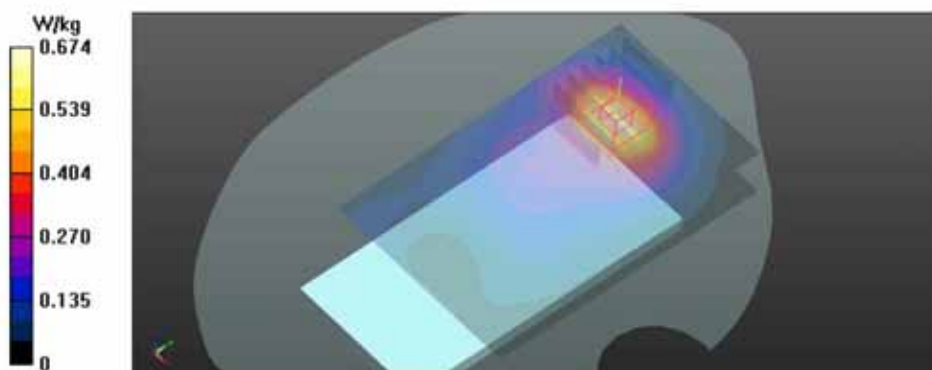
Body/UMTS1750_Rear_CH1513_Body Worn/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.639 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.731 W/kg

SAR(1 g) = 0.514 W/kg; SAR(10 g) = 0.340 W/kg

Maximum value of SAR (measured) = 0.663 W/kg



Appendix A.45 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1900 Body worn

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [UMTS1900_Rear_CH9400_Body Worn.da53:0](#)

Ambient Temp : 23.7 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, WCDMA2 (0); Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.49$ S/m; $\epsilon_r = 54.995$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.1, 8.1, 8.1); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/UMTS1900_Rear_CH9400_Body Worn/Area Scan (71x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.388 W/kg

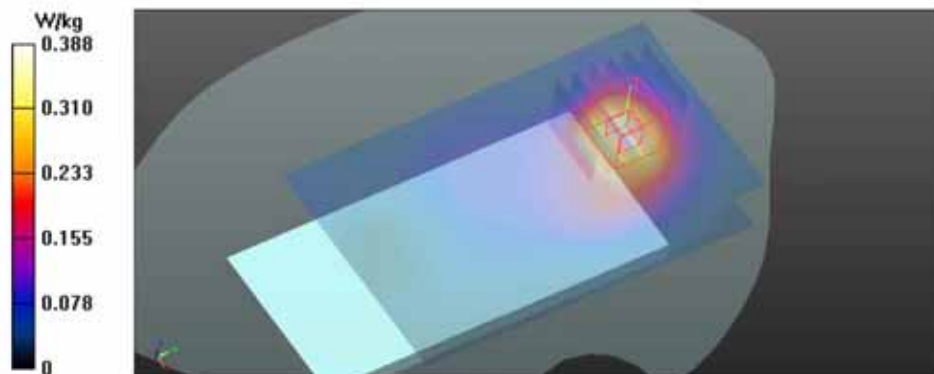
Body/UMTS1900_Rear_CH9400_Body Worn/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.401 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.426 W/kg

SAR(1 g) = 0.288 W/kg; SAR(10 g) = 0.185 W/kg

Maximum value of SAR (measured) = 0.379 W/kg



Appendix A.46 SAR Test Plots for Cell Phone+ LED View Cover CDMA BC 10 Body worn

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [CDMA BC10_Rear_CH564_Body Worn.da53:0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, CDMA BC10 (0); Frequency: 820.1 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 820.1$ MHz; $\sigma = 0.943$ S/m; $\epsilon_r = 55.593$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(9.83, 9.83, 9.83); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/CDMA BC10_Rear_CH564_Body Worn/Area Scan (71x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.391 W/kg

Body/CDMA BC10_Rear_CH564_Body Worn/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

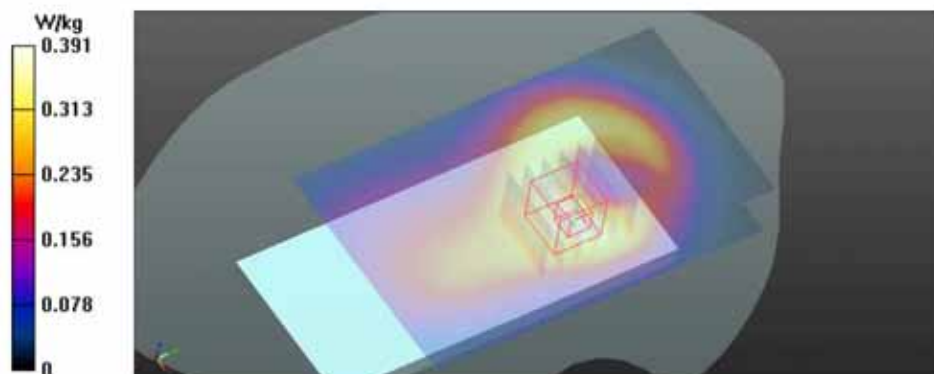
Reference Value = 15.59 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.405 W/kg

SAR(1 g) = 0.313 W/kg; SAR(10 g) = 0.229 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.374 W/kg



Appendix A.47 SAR Test Plots for Cell Phone+ LED View Cover CDMA BC 0 Body worn

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [CDMA BC0_Rear_CH384_Body Worn.da53:0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, CDMA DCN (0); Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.96$ S/m; $\epsilon_r = 55.447$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(9.83, 9.83, 9.83); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/CDMA BC0_Rear_CH384_Body Worn/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.384 W/kg

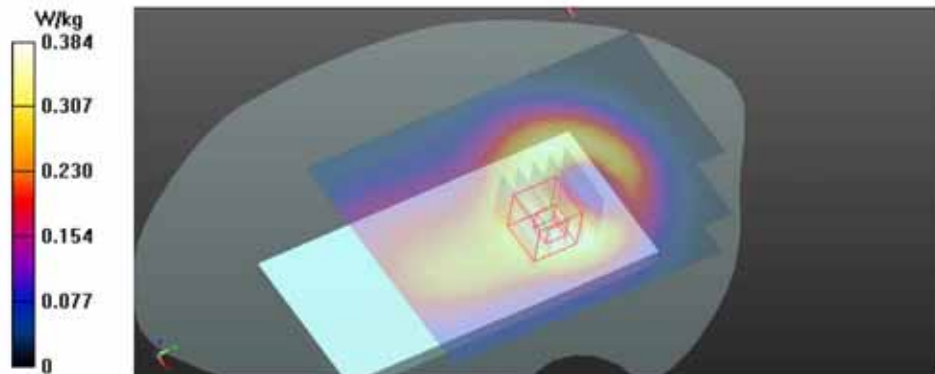
Body/CDMA BC0_Rear_CH384_Body Worn/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.01 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.413 W/kg

SAR(1 g) = 0.319 W/kg; SAR(10 g) = 0.232 W/kg

Maximum value of SAR (measured) = 0.380 W/kg



Appendix A.48 SAR Test Plots for Cell Phone+ LED View Cover PCS CDMA Body worn

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [PCS CDMA Rear_CH1175_Body Worn.da53-0](#)

Ambient Temp : 23.7 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, PCS CDMA (0); Frequency: 1908.75 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1909$ MHz; $\sigma = 1.521$ S/m; $\epsilon_r = 54.908$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.1, 8.1, 8.1); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/PCS CDMA_Rear_CH1175_Body Worn/Area Scan (71x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.270 W/kg

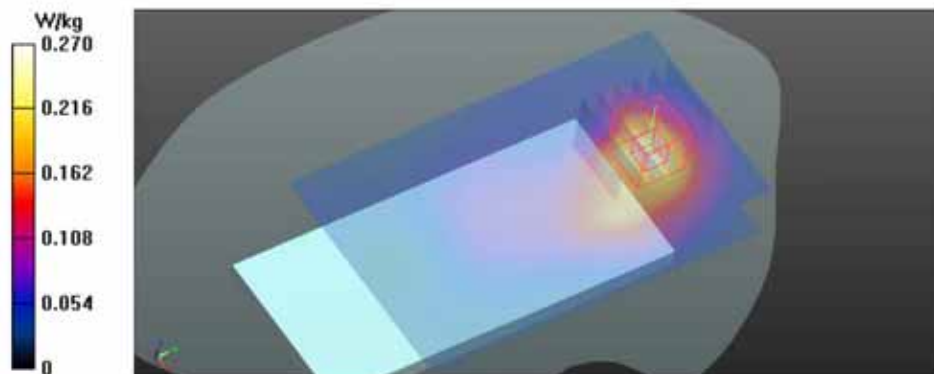
Body/PCS CDMA_Rear_CH1175_Body Worn/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.392 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.288 W/kg

SAR(1 g) = 0.199 W/kg; SAR(10 g) = 0.131 W/kg

Maximum value of SAR (measured) = 0.259 W/kg



Appendix A.49 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 71 Body worn

Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 71_20MHz_1RB_50 Offset_QPSK_Rear_CH133297_Body Worn.da53:0](#)

Ambient Temp : 23.4 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 71 (0); Frequency: 680.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 680.5$ MHz; $\sigma = 0.931$ S/m; $\epsilon_r = 56.258$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.19, 9.19, 9.19); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 71_20MHz_1RB_50 Offset_QPSK_Rear_CH133297_Body Worn/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.245 W/kg

Body/LTE Band 71_20MHz_1RB_50 Offset_QPSK_Rear_CH133297_Body Worn/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

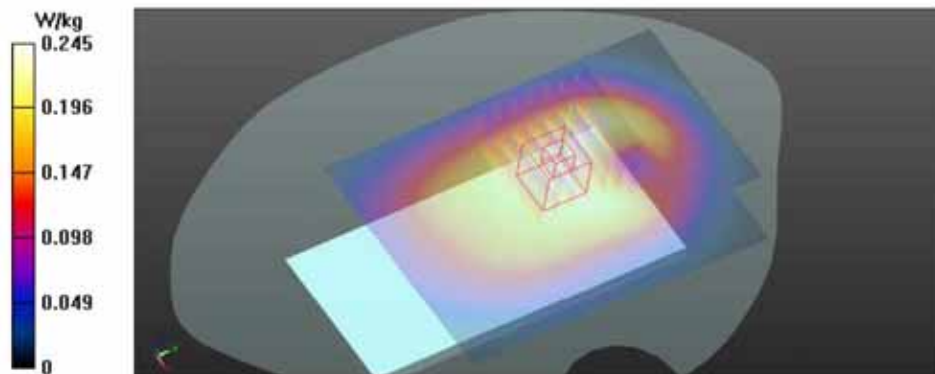
Reference Value = 14.41 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.272 W/kg

SAR(1 g) = 0.199 W/kg; SAR(10 g) = 0.152 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.245 W/kg



Appendix A.50 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 12 Body worn

Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 12_10MHz_1RB_25 Offset_QPSK_Rear_CH23095_Body Worn.da53:0](#)

Ambient Temp : 23.4 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 12 (0); Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 707.5$ MHz; $\sigma = 0.951$ S/m; $\epsilon_r = 55.985$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.19, 9.19, 9.19); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 12_10MHz_1RB_25 Offset_QPSK_Rear_CH23095_Body Worn/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.245 W/kg

Body/LTE Band 12_10MHz_1RB_25 Offset_QPSK_Rear_CH23095_Body Worn/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

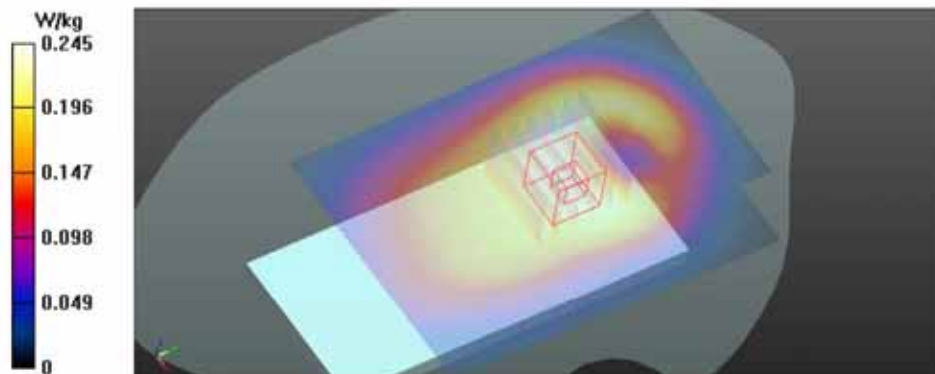
Reference Value = 14.27 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.269 W/kg

SAR(1 g) = 0.202 W/kg; SAR(10 g) = 0.154 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.243 W/kg



Appendix A.51 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 13 Body worn

Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 13_10MHz_1RB_0 Offset_QPSK_Rear_CH23230_Body Worn.da53:0](#)

Ambient Temp : 23.4 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 13 (0); Frequency: 782 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 782 \text{ MHz}$; $\sigma = 0.995 \text{ S/m}$; $\epsilon_r = 55.544$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.19, 9.19, 9.19); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 13_10MHz_1RB_0 Offset_QPSK_Rear_CH23230_Body Worn/Area Scan

(81x111x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.311 W/kg

Body/LTE Band 13_10MHz_1RB_0 Offset_QPSK_Rear_CH23230_Body Worn/Zoom Scan

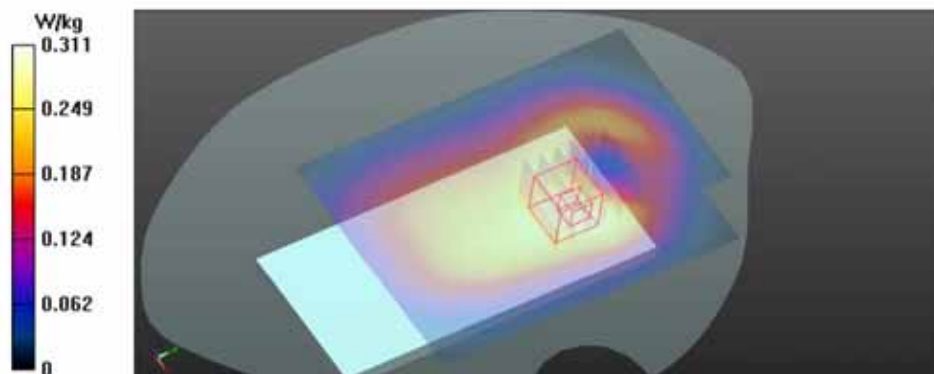
(5x6x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.70 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.327 W/kg

SAR(1 g) = 0.250 W/kg; SAR(10 g) = 0.187 W/kg

Maximum value of SAR (measured) = 0.299 W/kg



Appendix A.52 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 14 Body worn

Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 14_10MHz_1RB_25 Offset_QPSK_Rear_CH23330_Body Worn.da53:0](#)

Ambient Temp : 23.4 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 14 (0); Frequency: 793 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 793 \text{ MHz}$; $\sigma = 1.004 \text{ S/m}$; $\epsilon_r = 55.416$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.19, 9.19, 9.19); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 14_10MHz_1RB_25 Offset_QPSK_Rear_CH23330_Body Worn/Area Scan

(81x111x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.300 W/kg

Body/LTE Band 14_10MHz_1RB_25 Offset_QPSK_Rear_CH23330_Body Worn/Zoom Scan

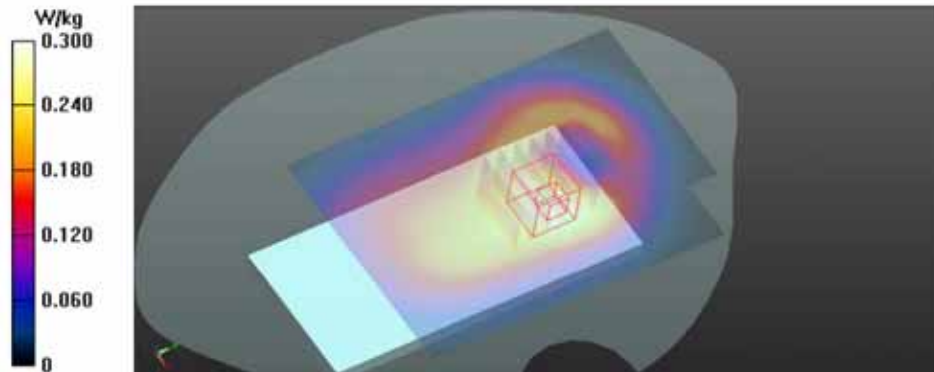
(5x6x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.73 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.326 W/kg

SAR(1 g) = 0.245 W/kg; SAR(10 g) = 0.179 W/kg

Maximum value of SAR (measured) = 0.295 W/kg



Appendix A.53 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 26 Body worn

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE_Band_26_15MHz_1RB_36_Offset_QPSK_Rear_CH26865_Body_Worn.da53:0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 26 (0); Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 831.5$ MHz; $\sigma = 0.955$ S/m; $\epsilon_r = 55.493$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(9.83, 9.83, 9.83); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 26_15MHz_1RB_36_Offset_QPSK_Rear_CH26865_Body Worn 2 2/Area Scan (71x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.247 W/kg

Body/LTE Band 26_15MHz_1RB_36_Offset_QPSK_Rear_CH26865_Body Worn 2 2/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

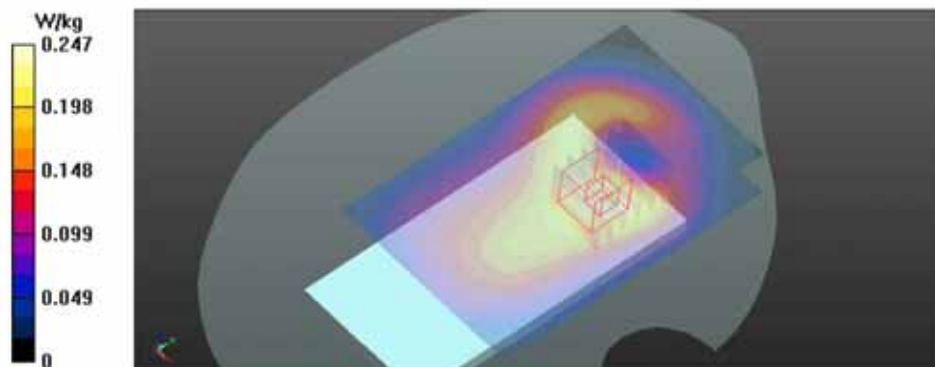
Reference Value = 13.36 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.258 W/kg

SAR(1 g) = 0.200 W/kg; SAR(10 g) = 0.149 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.239 W/kg



Appendix A.54 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 5 Body worn

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 5 10MHz 1RB 0 Offset QPSK Rear CH20525 Body Worm.da53:0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 5 (0); Frequency: 836.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.5$ MHz; $\sigma = 0.959$ S/m; $\epsilon_r = 55.449$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(9.83, 9.83, 9.83); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 5 10MHz 1RB 0 Offset QPSK Rear CH20525 Body Worm 2/Area Scan (71x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.315 W/kg

Body/LTE Band 5 10MHz 1RB 0 Offset QPSK Rear CH20525 Body Worm 2/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

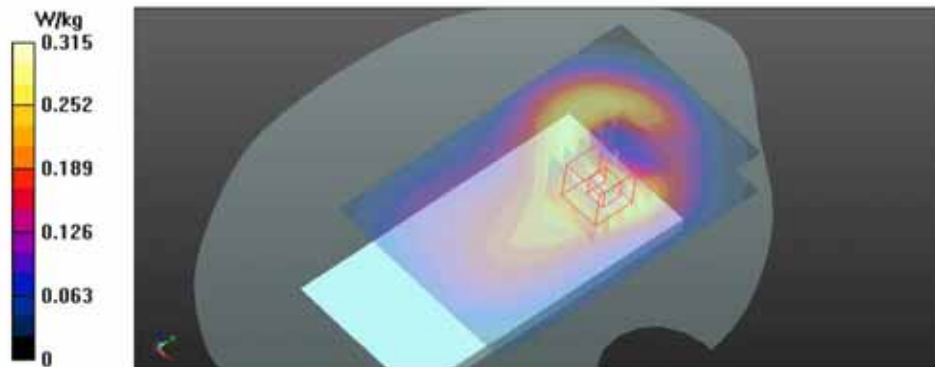
Reference Value = 14.06 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.328 W/kg

SAR(1 g) = 0.252 W/kg; SAR(10 g) = 0.184 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.305 W/kg



Appendix A.55 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 66 Body worn

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 66_20MHz_1RB_0 Offset_QPSK_Rear_CH132572_Body Worn.da53:0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 66 (0); Frequency: 1770 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1770$ MHz; $\sigma = 1.534$ S/m; $\epsilon_r = 51.139$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.37, 8.37, 8.37); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 66_20MHz_1RB_0 Offset_QPSK_Rear_CH132572_Body Worn/Area Scan

(71x111x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.855 W/kg

Body/LTE Band 66_20MHz_1RB_0 Offset_QPSK_Rear_CH132572_Body Worn/Zoom Scan

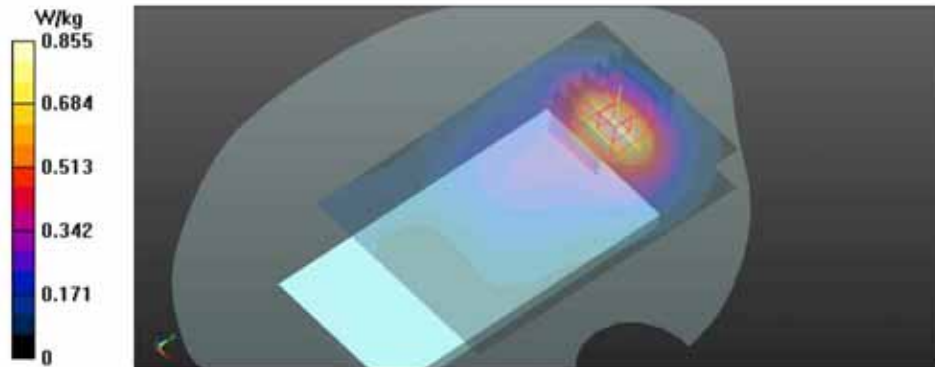
(5x6x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 10.49 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.954 W/kg

SAR(1 g) = 0.629 W/kg; SAR(10 g) = 0.395 W/kg

Maximum value of SAR (measured) = 0.848 W/kg



Appendix A.56 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 25 Body worn

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 25_20MHz_1RB_0 Offset_QPSK_Rear_CH26140_Body Worn.da53-0](#)

Ambient Temp : 23.7 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 25 (0); Frequency: 1860 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1860$ MHz; $\sigma = 1.469$ S/m; $\epsilon_r = 55.065$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.1, 8.1, 8.1); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 25_20MHz_1RB_0 Offset_QPSK_Rear_CH26140_Body Worn/Area Scan

(81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.465 W/kg

Body/LTE Band 25_20MHz_1RB_0 Offset_QPSK_Rear_CH26140_Body Worn/Zoom Scan

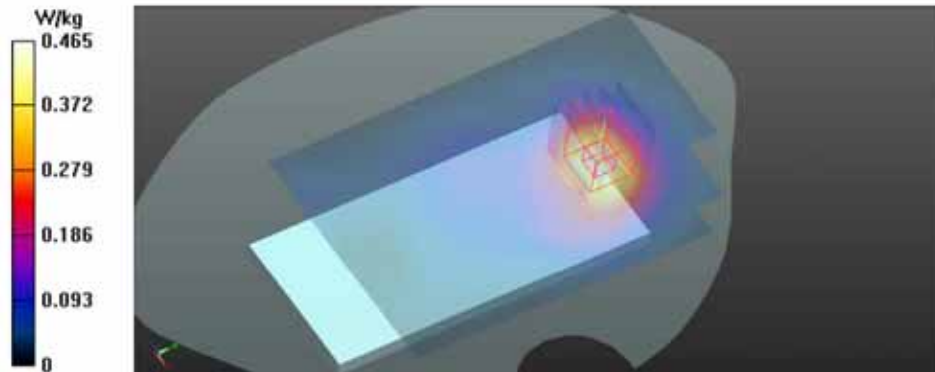
(5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 8.100 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.516 W/kg

SAR(1 g) = 0.354 W/kg; SAR(10 g) = 0.229 W/kg

Maximum value of SAR (measured) = 0.466 W/kg



Appendix A.57 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 30 Body worn

Date: 2018-03-30

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 30_10MHz_1RB_0 Offset_QPSK_Rear_CH27710_Body Worn.da53-0](#)

Ambient Temp : 23.1 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 30 (0); Frequency: 2310 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2310$ MHz; $\sigma = 1.811$ S/m; $\epsilon_r = 51.899$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3933; ConvF(8.26, 8.26, 8.26); Calibrated: 9/28/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 30_10MHz_1RB_0 Offset_QPSK_Rear_CH27710_Body Worn/Area Scan

(121x121x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.326 W/kg

Body/LTE Band 30_10MHz_1RB_0 Offset_QPSK_Rear_CH27710_Body Worn/Zoom Scan

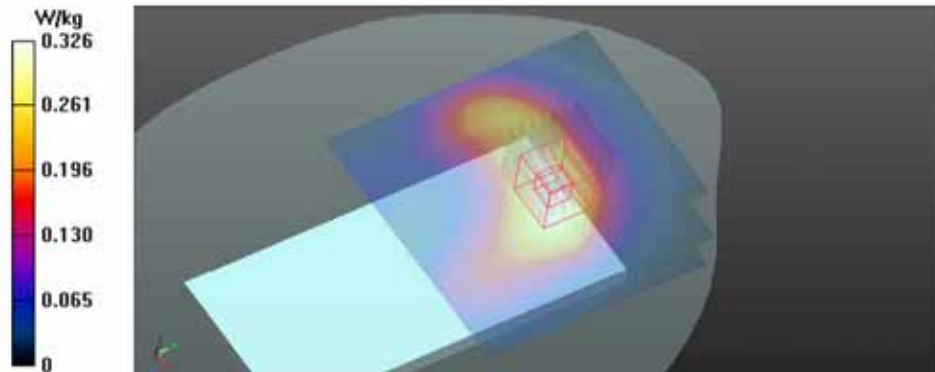
(7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 4.194 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.378 W/kg

SAR(1 g) = 0.226 W/kg; SAR(10 g) = 0.136 W/kg

Maximum value of SAR (measured) = 0.324 W/kg



Appendix A.58 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 7 Body worn

Date: 2018-03-30

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: LTE Band 7 20MHz 1RB 0 Offset QPSK Rear CH21100 Body Worn Ant B.da53:0

Ambient Temp : 23.1 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 7 (0); Frequency: 2535 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2535$ MHz; $\sigma = 2.137$ S/m; $\epsilon_r = 51.929$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(7.51, 7.51, 7.51); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 7 20MHz 1RB 0 Offset QPSK Rear CH21100 Body Worn/Area Scan

(121x121x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.422 W/kg

Body/LTE Band 7 20MHz 1RB 0 Offset QPSK Rear CH21100 Body Worn/Zoom Scan

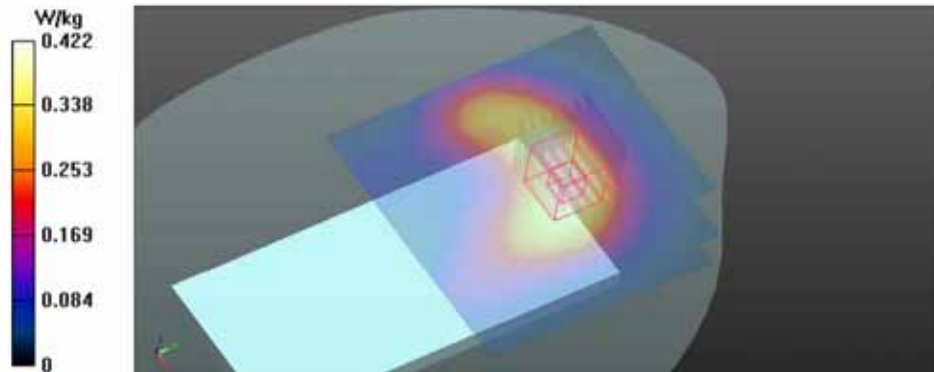
(7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 4.220 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.493 W/kg

SAR(1 g) = 0.294 W/kg; SAR(10 g) = 0.182 W/kg

Maximum value of SAR (measured) = 0.417 W/kg



Appendix A.59 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 41 Body worn

Date: 2018-03-30

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE_Band_41_20MHz_1RB_0_Offset_QPSK_Rear_CH40185_Body_Worn.da53-0](#)

Ambient Temp : 23.1 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 41 (0); Frequency: 2549.5 MHz; Duty Cycle: 1:1.57979

Medium parameters used (interpolated): $f = 2549.5$ MHz; $\sigma = 2.157$ S/m; $\epsilon_r = 51.877$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(7.51, 7.51, 7.51); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 41_20MHz_1RB_0_Offset_QPSK_Rear_CH40185_Body Worn/Area Scan (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.353 W/kg

Body/LTE Band 41_20MHz_1RB_0_Offset_QPSK_Rear_CH40185_Body Worn/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

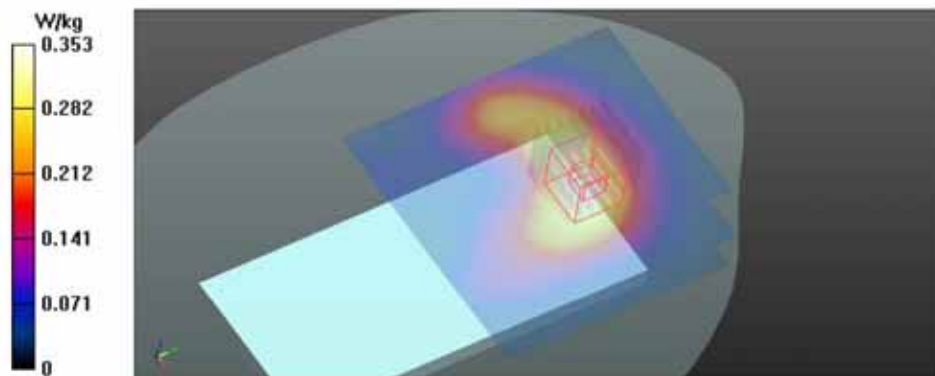
Reference Value = 3.947 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.411 W/kg

SAR(1 g) = 0.235 W/kg; SAR(10 g) = 0.145 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.343 W/kg



Appendix A.60 SAR Test Plots for Cell Phone+ LED View Cover 2.4 GHz WLAN Body worn

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: 2.45GHz_WLAN_802.11b_Rear_CH1_Ant2_Body Worn.da53-0

Ambient Temp : 22.8 °C Tissue Temp : 21.4 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, WLAN 2.45GHz (0); Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.949$ S/m; $\epsilon_r = 50.614$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(7.67, 7.67, 7.67); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/2.45GHz_WLAN_802.11b_Rear_CH1_Ant2_Body Worn/Area Scan (121x101x1): Interpolated

grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.133 W/kg

Body/2.45GHz_WLAN_802.11b_Rear_CH1_Ant2_Body Worn/Zoom Scan (7x7x7)/Cube 0:

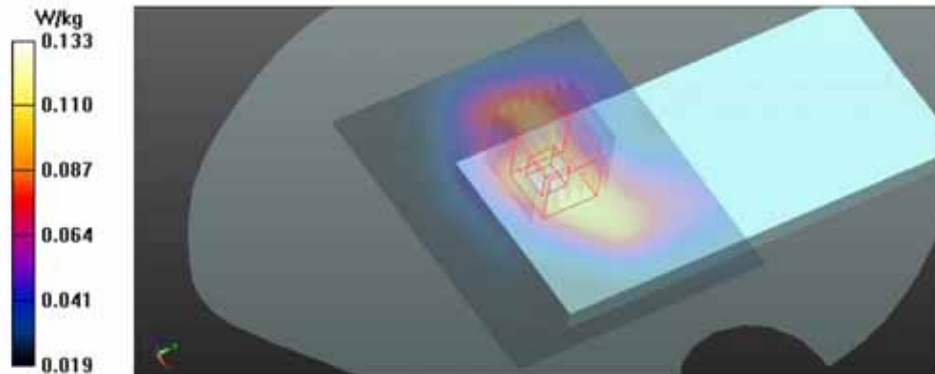
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.673 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.151 W/kg

SAR(1 g) = 0.097 W/kg; SAR(10 g) = 0.063 W/kg

Maximum value of SAR (measured) = 0.133 W/kg



Appendix A.61 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2A Body worn

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [5.3GHz WLAN 802.11n HT40 Rear CH54 Ant2 Body Worn.da53.0](#)

Ambient Temp : 22.8 °C Tissue Temp : 21.6 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, 5GHz WLAN (0); Frequency: 5270 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5270 \text{ MHz}$; $\sigma = 5.233 \text{ S/m}$; $\epsilon_r = 46.893$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(4.37, 4.37, 4.37); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/5.3GHz WLAN 802.11n HT40 Rear CH54 Ant2 Body Worn/Area Scan (121x101x1):

Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.296 W/kg

Body/5.3GHz WLAN 802.11n HT40 Rear CH54 Ant2 Body Worn/Zoom Scan (8x8x7)/Cube 0:

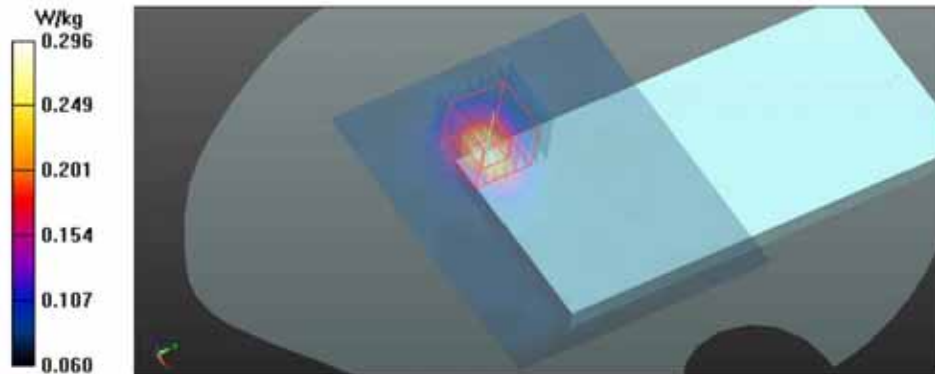
Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 4.262 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.310 W/kg

SAR(1 g) = 0.162 W/kg; SAR(10 g) = 0.122 W/kg

Maximum value of SAR (measured) = 0.235 W/kg



Appendix A.62 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2C Body worn

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [5.6GHz WLAN_802.11ac_VHT80_Rear_CH122_Ant1_Body Worn.da53.0](#)

Ambient Temp : 22.8 °C Tissue Temp : 21.6 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, 5GHz WLAN (0); Frequency: 5610 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 5610$ MHz; $\sigma = 5.89$ S/m; $\epsilon_r = 46.466$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(3.9, 3.9, 3.9); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/5.6GHz WLAN_802.11ac_VHT80_Rear_CH122_Ant1_Body Worn/Area Scan (121x101x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.365 W/kg

Body/5.6GHz WLAN_802.11ac_VHT80_Rear_CH122_Ant1_Body Worn/Zoom Scan (9x9x7)/Cube

0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

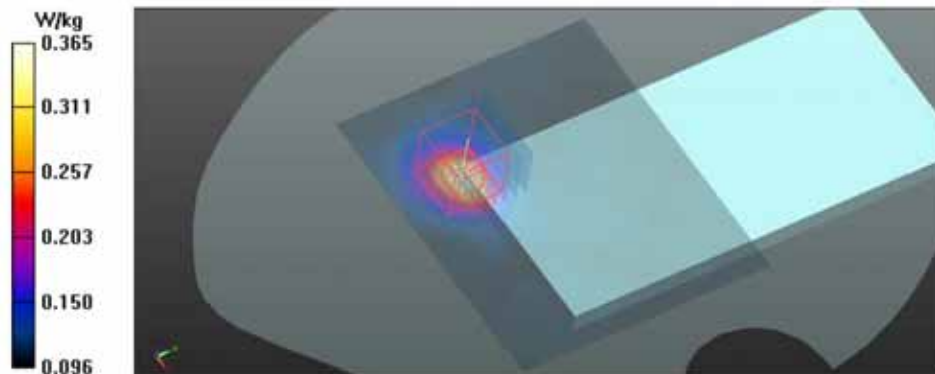
Reference Value = 4.012 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.450 W/kg

SAR(1 g) = 0.228 W/kg; SAR(10 g) = 0.168 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.344 W/kg



Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [5.6GHz WLAN 802.11ac VHT80 Rear CH122 Ant2 Body Worn.da53-0](#)

Ambient Temp : 22.8 °C Tissue Temp : 21.6 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, 5GHz WLAN (0); Frequency: 5610 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 5610 \text{ MHz}$; $\sigma = 5.89 \text{ S/m}$; $\epsilon_r = 46.466$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(3.9, 3.9, 3.9); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/5.6GHz WLAN 802.11ac VHT80 Rear CH122 Ant2 Body Worn/Area Scan (121x101x1):

Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.388 W/kg

Body/5.6GHz WLAN 802.11ac VHT80 Rear CH122 Ant2 Body Worn/Zoom Scan (9x9x7)/Cube

0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

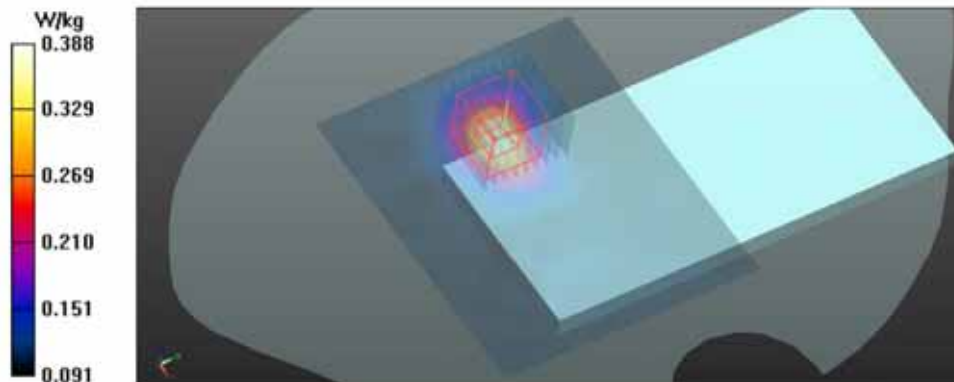
Reference Value = 4.936 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.515 W/kg

SAR(1 g) = 0.244 W/kg; SAR(10 g) = 0.173 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.381 W/kg



Appendix A.63 SAR Test Plots for Cell Phone+ LED View Cover U-NII-3 Body worn

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: 5.8GHz WLAN 802.11ac VHT80 Rear CH155 Ant1 Body Worn.da53.0

Ambient Temp : 22.8 °C Tissue Temp : 21.5 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, 5GHz WLAN (0); Frequency: 5775 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5775 \text{ MHz}$; $\sigma = 5.963 \text{ S/m}$; $\epsilon_r = 47.24$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(4.09, 4.09, 4.09); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/5.8GHz WLAN 802.11ac VHT80 Rear CH155 Ant1 Body Worn/Area Scan (121x101x1):

Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.239 W/kg

Body/5.8GHz WLAN 802.11ac VHT80 Rear CH155 Ant1 Body Worn/Zoom Scan (8x8x7)/Cube

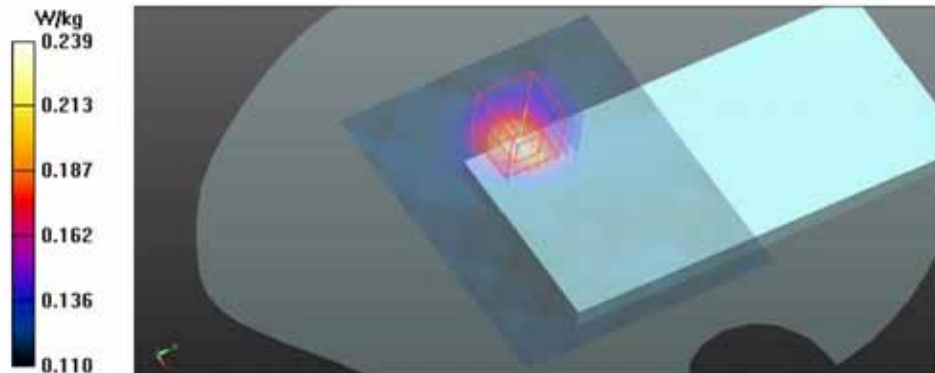
0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 5.128 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.297 W/kg

SAR(1 g) = 0.188 W/kg; SAR(10 g) = 0.166 W/kg

Maximum value of SAR (measured) = 0.228 W/kg



Appendix A.64 SAR Test Plots for Cell Phone+ LED View Cover Bluetooth Body worn

Date: 2018-03-30

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [Bluetooth_GFSK_DH5_Rear_CH39_Body Wron da53-0](#)

Ambient Temp : 23.1 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, Bluetooth 3.0 (0); Frequency: 2441 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2441$ MHz; $\sigma = 1.927$ S/m; $\epsilon_r = 50.854$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(7.67, 7.67, 7.67); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/Bluetooth_GFSK_DH5_Rear_CH39_Body Wron 2 2/Area Scan (121x101x1): Interpolated grid:
dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.0405 W/kg

Body/Bluetooth_GFSK_DH5_Rear_CH39_Body Wron 2 2/Zoom Scan (7x7x7)/Cube 0: Measurement
grid: dx=5mm, dy=5mm, dz=5mm

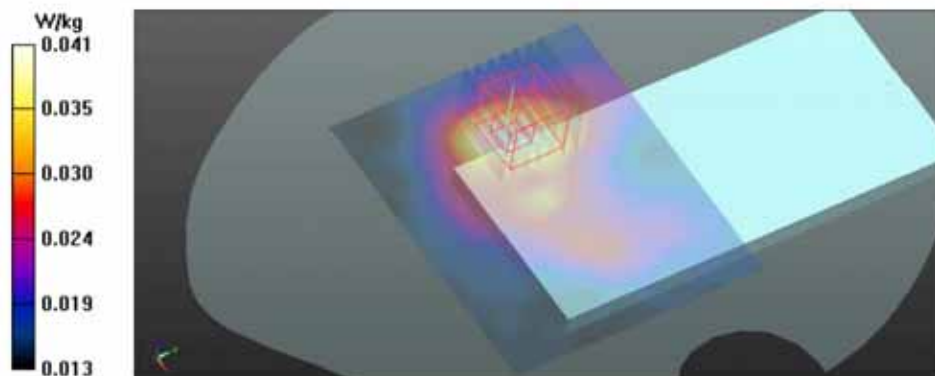
Reference Value = 3.490 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.0490 W/kg

SAR(1 g) = 0.031 W/kg; SAR(10 g) = 0.024 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.0407 W/kg



Appendix A.65 SAR Test Plots for Cell Phone+ LED View Cover GSM 850 Hotspot

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [GPRS 850_Rear_CH190_4TX_Hotspot.da53:0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7°C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

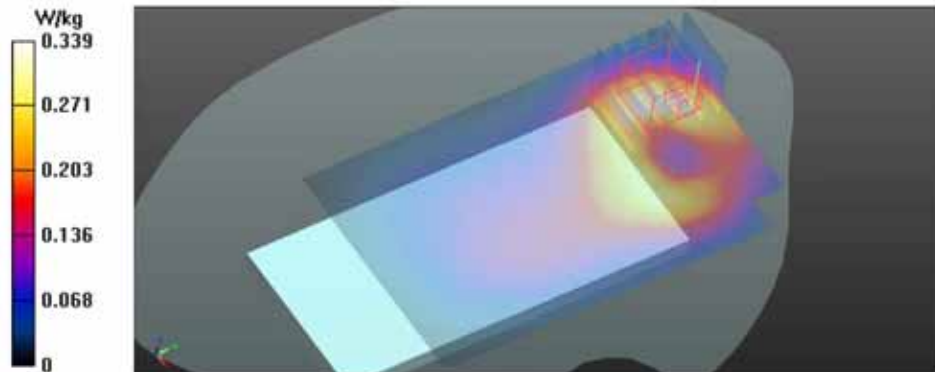
Communication System: UID 0, GPRS850 4TX (0); Frequency: 836.6 MHz; Duty Cycle: 1:2.07491
Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 0.96 \text{ S/m}$; $\epsilon_r = 55.447$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(9.83, 9.83, 9.83); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/GPRS 850_Rear_CH190_4TX_Hotspot/Area Scan (71x111x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.339 W/kg

Body/GPRS 850_Rear_CH190_4TX_Hotspot/Zoom Scan (5x6x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 10.82 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.369 W/kg
SAR(1 g) = 0.239 W/kg; SAR(10 g) = 0.153 W/kg
Maximum value of SAR (measured) = 0.325 W/kg



Appendix A.66 SAR Test Plots for Cell Phone+ LED View Cover GSM 1900 Hotspot

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [GPRS 1900_Bottom_CH661_3TX_Hotspot.da53.0](#)

Ambient Temp : 23.7 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

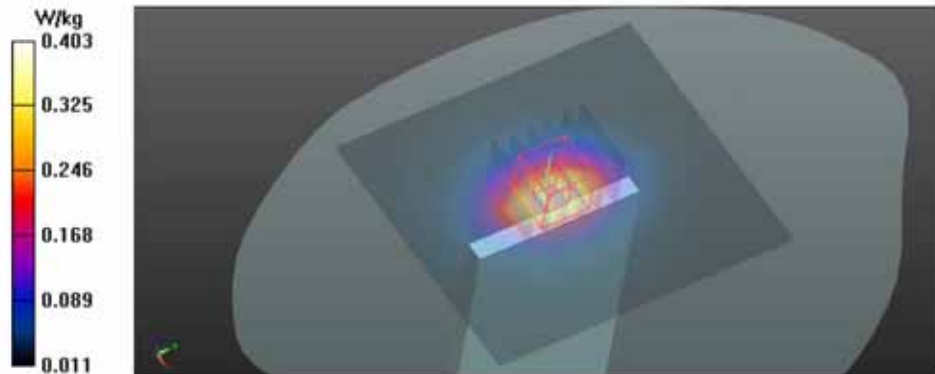
Communication System: UID 0, GPRS1900 3TX (0); Frequency: 1880 MHz; Duty Cycle: 1:2.77013
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.49 \text{ S/m}$; $\epsilon_r = 54.995$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.1, 8.1, 8.1); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/GPRS 1900_Bottom_CH661_3TX_Hotspot/Area Scan (81x91x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.403 W/kg

Body/GPRS 1900_Bottom_CH661_3TX_Hotspot/Zoom Scan (5x6x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 6.431 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.373 W/kg
SAR(1 g) = 0.262 W/kg; SAR(10 g) = 0.168 W/kg
Maximum value of SAR (measured) = 0.334 W/kg



Appendix A.67 SAR Test Plots for Cell Phone+ LED View Cover UMTS 850 Hotspot

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: UMTS850_Rear_CH4183_Hotspot.da53:0

Ambient Temp : 22.9 °C Tissue Temp : 21.7°C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, WCDMA5 (0); Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 837$ MHz; $\sigma = 0.96$ S/m; $\epsilon_r = 55.447$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(9.83, 9.83, 9.83); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/UMTS850_Rear_CH4183_Hotspot/Area Scan (71x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.594 W/kg

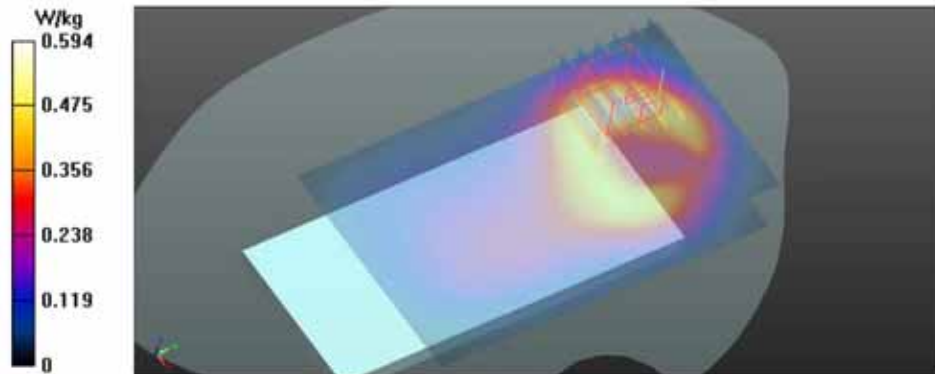
Body/UMTS850_Rear_CH4183_Hotspot/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.95 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.647 W/kg

SAR(1 g) = 0.419 W/kg; SAR(10 g) = 0.269 W/kg

Maximum value of SAR (measured) = 0.566 W/kg



Appendix A.68 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1750 Hotspot

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [UMTS1750_Bottom_CH1412_Hotspot.da53.0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7°C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, WCDMA 4 (0); Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.4$ MHz; $\sigma = 1.491$ S/m; $\epsilon_r = 51.27$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.37, 8.37, 8.37); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/UMTS1750_Bottom_CH1412_Hotspot/Area Scan (81x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.559 W/kg

Body/UMTS1750_Bottom_CH1412_Hotspot/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

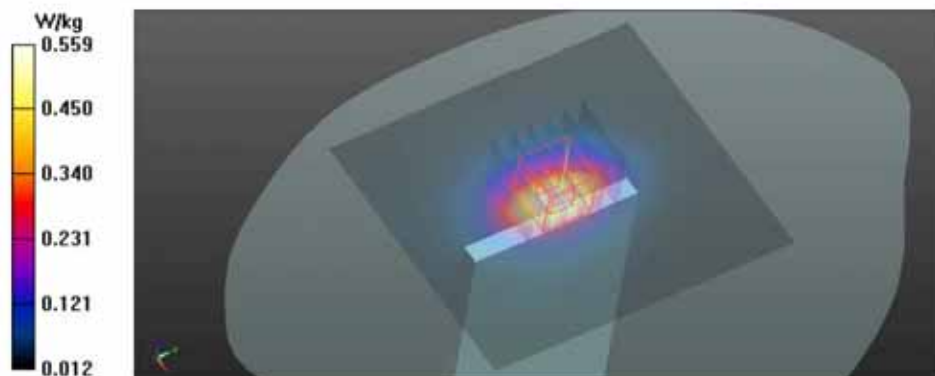
Reference Value = 7.365 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 0.456 W/kg

SAR(1 g) = 0.321 W/kg; SAR(10 g) = 0.205 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.413 W/kg



Appendix A.69 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1900 Hotspot

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [UMTS1900_Bottom_CH9400_Hotspot.da53:0](#)

Ambient Temp : 23.7 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

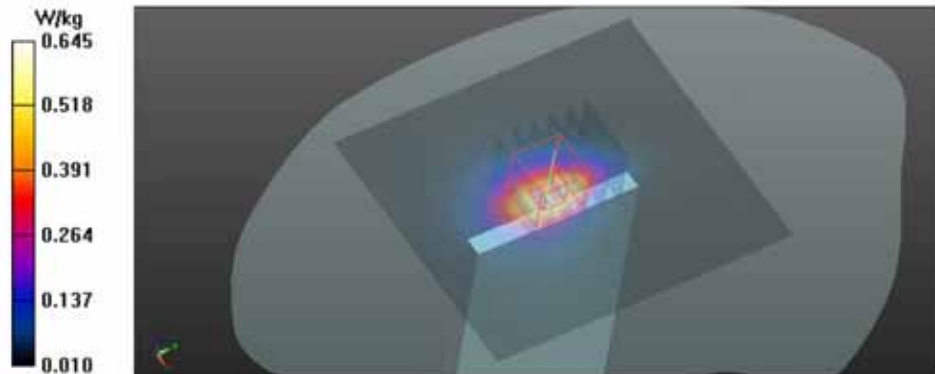
Communication System: UID 0, WCDMA2 (0); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.49 \text{ S/m}$; $\epsilon_r = 54.995$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.1, 8.1, 8.1); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/UMTS1900_Bottom_CH9400_Hotspot/Area Scan (81x91x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.645 W/kg

Body/UMTS1900_Bottom_CH9400_Hotspot/Zoom Scan (5x6x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 6.275 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.707 W/kg
SAR(1 g) = 0.458 W/kg; SAR(10 g) = 0.264 W/kg
Maximum value of SAR (measured) = 0.633 W/kg



Appendix A.70 SAR Test Plots for Cell Phone+ LED View Cover CDMA BC 10 Hotspot

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [CDMA BC10_Rear_CH564_Hotspot_da53-0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, CDMA BC10 (0); Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 820.1$ MHz; $\sigma = 0.943$ S/m; $\epsilon_r = 55.593$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

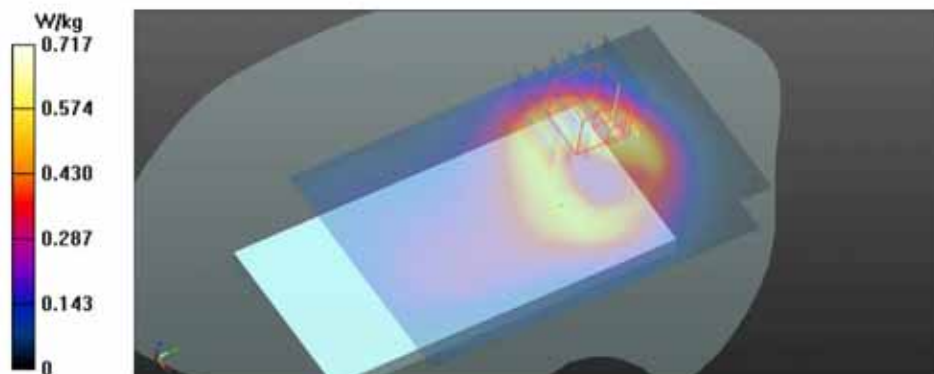
- Probe: EX3DV4 - SN3862; ConvF(9.83, 9.83, 9.83); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/CDMA BC10_Rear_CH564_Hotspot/Area Scan (71x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.717 W/kg

Body/CDMA BC10_Rear_CH564_Hotspot/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.43 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.789 W/kg
SAR(1 g) = 0.519 W/kg; SAR(10 g) = 0.331 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.701 W/kg



Appendix A.71 SAR Test Plots for Cell Phone+ LED View Cover CDMA BC 0 Hotspot

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [CDMA BC0_Rear_CH1013_Hotspot.da53:0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, CDMA DCN (0); Frequency: 824.7 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 825 \text{ MHz}$; $\sigma = 0.948 \text{ S/m}$; $\epsilon_r = 55.553$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(9.83, 9.83, 9.83); Calibrated: 2017-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 2017-05-23
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/CDMA BC0_Rear_CH1013_Hotspot/Area Scan (81x111x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.718 W/kg

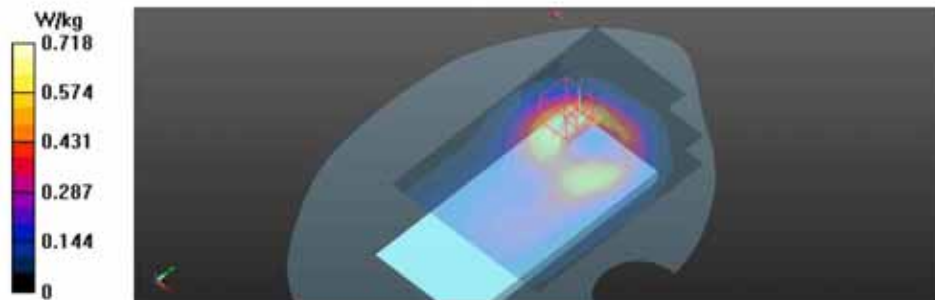
Body/CDMA BC0_Rear_CH1013_Hotspot/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.72 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.785 W/kg

SAR(1 g) = 0.514 W/kg; SAR(10 g) = 0.330 W/kg

Maximum value of SAR (measured) = 0.681 W/kg



Appendix A.72 SAR Test Plots for Cell Phone+ LED View Cover PCS CDMA Hotspot

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [PCS CDMA_Bottom_CH1175_Hotspot.da53.0](#)

Ambient Temp : 23.7 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

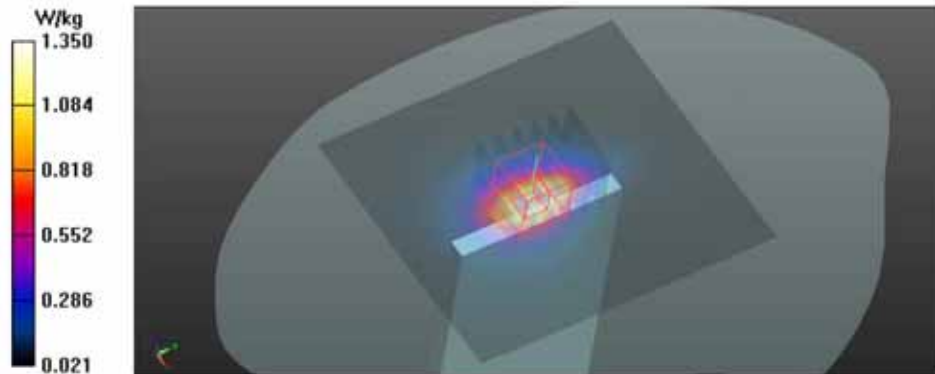
Communication System: UID 0, PCS CDMA (0); Frequency: 1908.75 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1909 \text{ MHz}$; $\sigma = 1.521 \text{ S/m}$; $\epsilon_r = 54.908$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.1, 8.1, 8.1); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/PCS CDMA_Bottom_CH1175_Hotspot/Area Scan (81x91x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 1.35 W/kg

Body/PCS CDMA_Bottom_CH1175_Hotspot/Zoom Scan (5x6x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.543 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 0.673 W/kg
SAR(1 g) = 0.457 W/kg; SAR(10 g) = 0.285 W/kg
Maximum value of SAR (measured) = 0.608 W/kg



Appendix A.73 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 71 Hotspot

Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 71_20MHz_1RB_50 Offset_QPSK_Rear_CHI33297_Hotspot.da53.0](#)

Ambient Temp : 23.4 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 71 (0); Frequency: 680.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 680.5$ MHz; $\sigma = 0.931$ S/m; $\epsilon_r = 56.258$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.19, 9.19, 9.19); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 71_20MHz_1RB_50 Offset_QPSK_Rear_CHI33297_Hotspot/Area Scan (81x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.347 W/kg

Body/LTE Band 71_20MHz_1RB_50 Offset_QPSK_Rear_CHI33297_Hotspot/Zoom Scan (7x11x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

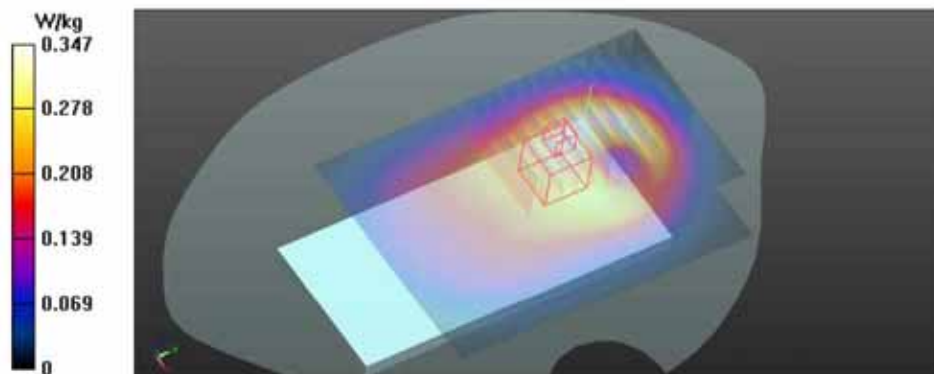
Reference Value = 14.56 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.398 W/kg

SAR(1 g) = 0.257 W/kg; SAR(10 g) = 0.183 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.344 W/kg



Appendix A.74 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 12 Hotspot

Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE_Band_12_10MHz_1RB_25_Offset_QPSK_Rear_CH23095_Hotspot.da53.0](#)

Ambient Temp : 23.4 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 12 (0); Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 707.5$ MHz; $\sigma = 0.951$ S/m; $\epsilon_r = 55.985$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.19, 9.19, 9.19); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 12_10MHz_1RB_25_Offset_QPSK_Rear_CH23095_Hotspot/Area Scan (81x111x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.464 W/kg

Body/LTE Band 12_10MHz_1RB_25_Offset_QPSK_Rear_CH23095_Hotspot/Zoom Scan

(7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

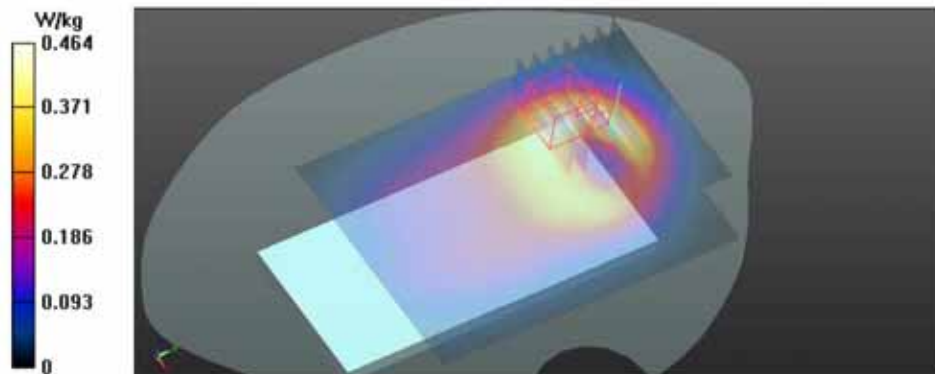
Reference Value = 14.65 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.542 W/kg

SAR(1 g) = 0.333 W/kg; SAR(10 g) = 0.209 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.465 W/kg



Appendix A.75 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 13 Hotspot

Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE_Band_13_10MHz_1RB_0_Offset_QPSK_Rear_CH23230_Hotspot.da53:0](#)

Ambient Temp : 23.4 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 13 (0); Frequency: 782 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 782 \text{ MHz}$; $\sigma = 0.995 \text{ S/m}$; $\epsilon_r = 55.544$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.19, 9.19, 9.19); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 13_10MHz_1RB_0_Offset_QPSK_Rear_CH23230_Hotspot/Area Scan (81x111x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.479 W/kg

Body/LTE Band 13_10MHz_1RB_0_Offset_QPSK_Rear_CH23230_Hotspot/Zoom Scan

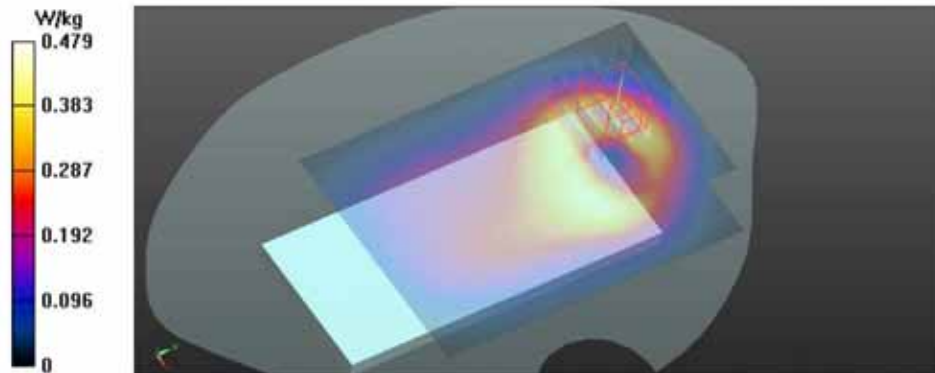
(5x6x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.79 V/m; Power Drift = -0.20 dB

Peak SAR (extrapolated) = 0.542 W/kg

SAR(1 g) = 0.334 W/kg; SAR(10 g) = 0.204 W/kg

Maximum value of SAR (measured) = 0.462 W/kg



Appendix A.76 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 14 Hotspot

Date: 2018-03-31

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE_Band_14_10MHz_1RB_25_Offset_QPSK_Rear_CH23330_Hotspot.da53.0](#)

Ambient Temp : 23.4 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 14 (0); Frequency: 793 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 793 \text{ MHz}$; $\sigma = 1.004 \text{ S/m}$; $\epsilon_r = 55.416$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3791; ConvF(9.19, 9.19, 9.19); Calibrated: 5/31/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 14_10MHz_1RB_25_Offset_QPSK_Rear_CH23330_Hotspot/Area Scan (81x111x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.490 W/kg

Body/LTE Band 14_10MHz_1RB_25_Offset_QPSK_Rear_CH23330_Hotspot/Zoom Scan

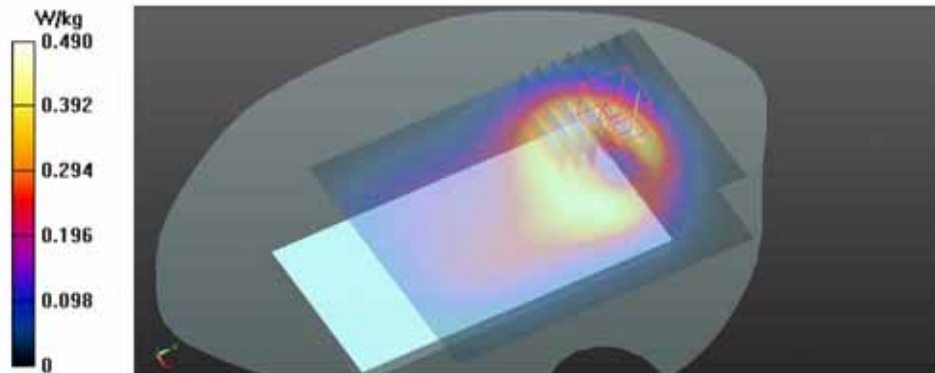
(6x7x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.00 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.591 W/kg

SAR(1 g) = 0.365 W/kg; SAR(10 g) = 0.220 W/kg

Maximum value of SAR (measured) = 0.486 W/kg



Appendix A.77 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 26 Hotspot

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE_Band_26_15MHz_1RB_36_Offset_QPSK_Rear_CH26865_Hotspot.da53.0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7°C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 26 (0); Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 831.5$ MHz; $\sigma = 0.955$ S/m; $\epsilon_r = 55.493$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(9.83, 9.83, 9.83); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 26_15MHz_1RB_36_Offset_QPSK_Rear_CH26865_Hotspot/Area Scan (71x111x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.617 W/kg

Body/LTE Band 26_15MHz_1RB_36_Offset_QPSK_Rear_CH26865_Hotspot/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

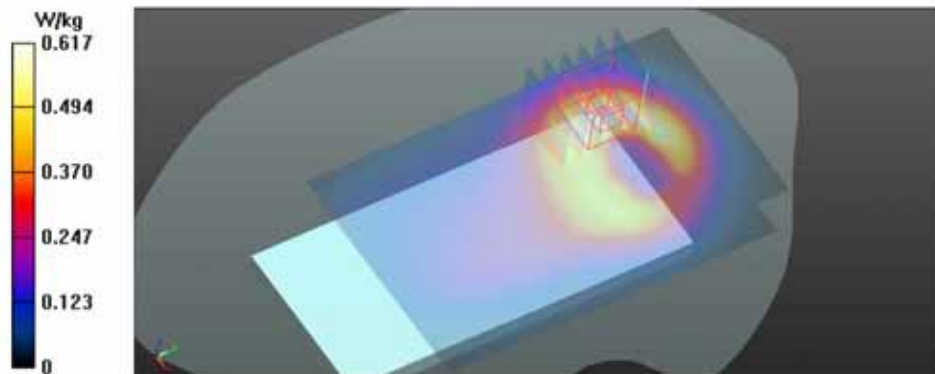
Reference Value = 15.08 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.700 W/kg

SAR(1 g) = 0.452 W/kg; SAR(10 g) = 0.292 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.608 W/kg



Appendix A.78 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 5 Hotspot

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 5 10MHz 1RB 0 Offset QPSK Rear CH20525 Hotspot.da53-0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7°C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 5 (0); Frequency: 836.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.5$ MHz; $\sigma = 0.959$ S/m; $\epsilon_r = 55.449$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(9.83, 9.83, 9.83); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 5 10MHz 1RB 0 Offset QPSK Rear CH20525 Hotspot/Area Scan (71x111x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.621 W/kg

Body/LTE Band 5 10MHz 1RB 0 Offset QPSK Rear CH20525 Hotspot/Zoom Scan (5x6x7)/Cube

0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

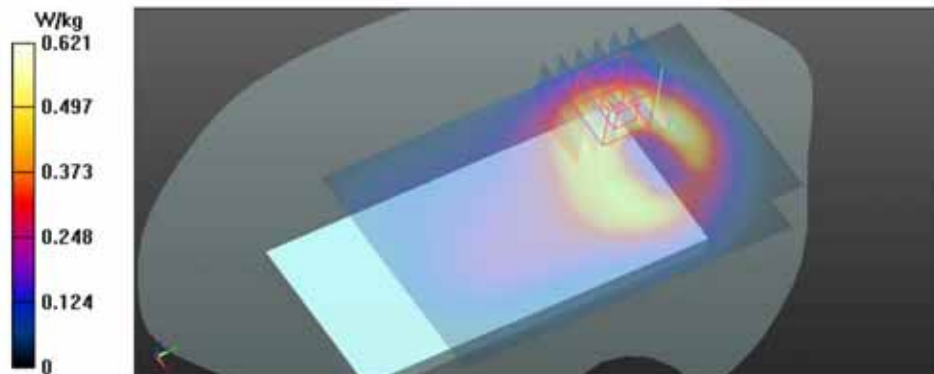
Reference Value = 15.05 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.704 W/kg

SAR(1 g) = 0.454 W/kg; SAR(10 g) = 0.293 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.615 W/kg



Appendix A.79 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 66 Hotspot

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 66_20MHz_50RB_0 Offset_QPSK_Rear_CH132572_Hotspot.da53.0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7°C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 66 (0); Frequency: 1770 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1770$ MHz; $\sigma = 1.534$ S/m; $\epsilon_r = 51.139$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.37, 8.37, 8.37); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 66_20MHz_50RB_0 Offset_QPSK_Rear_CH132572_Hotspot/Area Scan

(71x111x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.483 W/kg

Body/LTE Band 66_20MHz_50RB_0 Offset_QPSK_Rear_CH132572_Hotspot/Zoom Scan

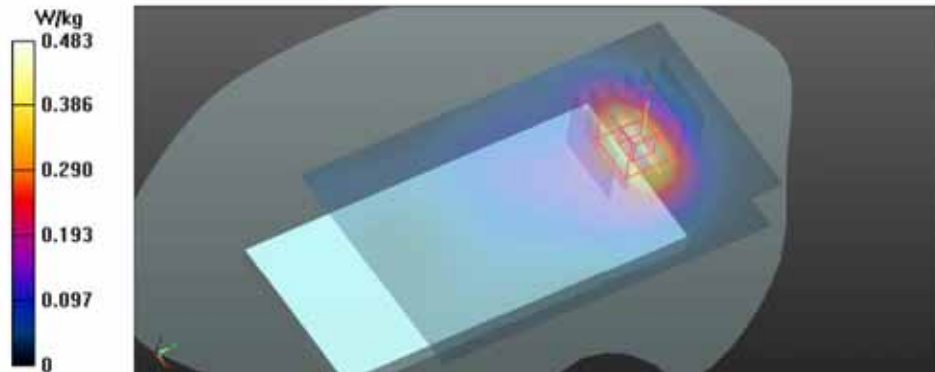
(5x6x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 7.112 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.552 W/kg

SAR(1 g) = 0.357 W/kg; SAR(10 g) = 0.217 W/kg

Maximum value of SAR (measured) = 0.487 W/kg



Appendix A.80 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 25 Hotspot

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 25_20MHz_50RB_0 Offset_QPSK_Bottom_CH26590_Hotspot.da53:0](#)

Ambient Temp : 23.7 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 25 (0); Frequency: 1905 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1905$ MHz; $\sigma = 1.517$ S/m; $\epsilon_r = 54.92$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.1, 8.1, 8.1); Calibrated: 2017-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 2017-05-23
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 25_20MHz_50RB_0 Offset_QPSK_Bottom_CH26590_Hotspot/Area Scan (81x91x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 1.19 W/kg

Body/LTE Band 25_20MHz_50RB_0 Offset_QPSK_Bottom_CH26590_Hotspot/Zoom Scan

(5x6x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

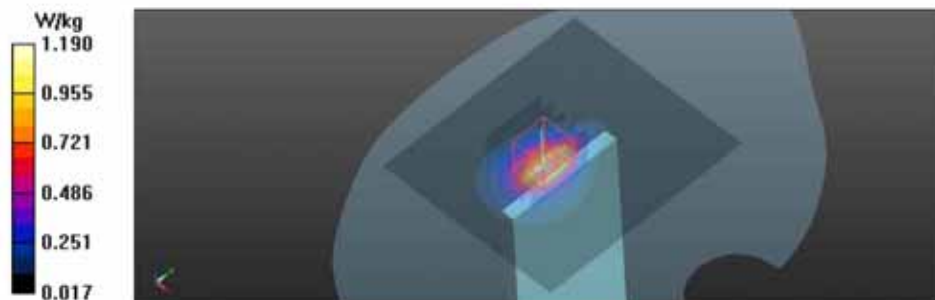
Reference Value = 4.928 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.916 W/kg

SAR(1 g) = 0.612 W/kg; SAR(10 g) = 0.369 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.824 W/kg



Appendix A.81 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 30 Hotspot

Date: 2018-03-30

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 30_10MHz_1RB_0 Offset_QPSK_Bottom_CH27710_Hotspot.da53.0](#)

Ambient Temp : 23.1 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 30 (0); Frequency: 2310 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2310$ MHz; $\sigma = 1.811$ S/m; $\epsilon_r = 51.899$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3933; ConvF(8.26, 8.26, 8.26); Calibrated: 9/28/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 30_10MHz_1RB_0 Offset_QPSK_Bottom_CH27710_Hotspot/Area Scan

(61x121x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.799 W/kg

Body/LTE Band 30_10MHz_1RB_0 Offset_QPSK_Bottom_CH27710_Hotspot/Zoom Scan

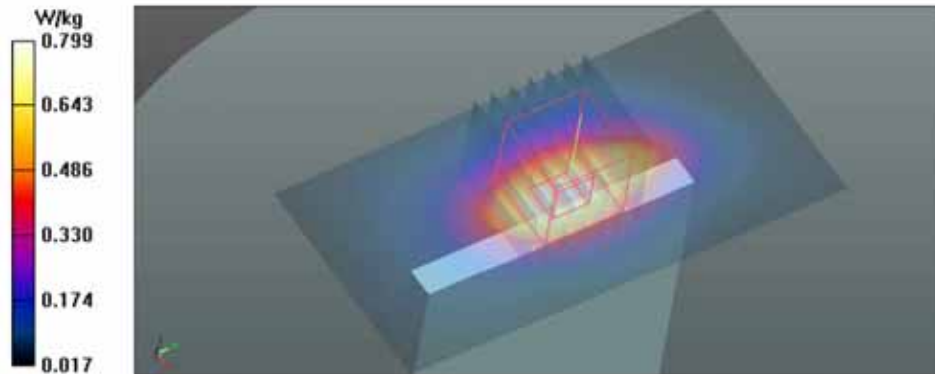
(7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 8.756 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.957 W/kg

SAR(1 g) = 0.534 W/kg; SAR(10 g) = 0.284 W/kg

Maximum value of SAR (measured) = 0.802 W/kg



Appendix A.82 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 7 Hotspot

Date: 2018-03-30

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 7 20MHz 1RB 0 Offset QPSK Bottom CH21100 Hotspot Ant A.da53-0](#)

Ambient Temp : 23.1 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 7 (0); Frequency: 2535 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2535$ MHz; $\sigma = 2.137$ S/m; $\epsilon_r = 51.929$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(7.51, 7.51, 7.51); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 7 20MHz 1RB 0 Offset QPSK Bottom CH21100 Hotspot Ant A/Area Scan (91x121x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 1.42 W/kg

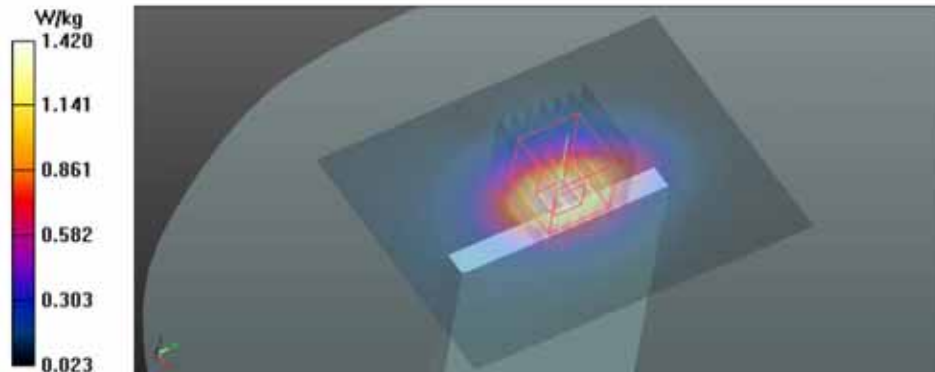
Body/LTE Band 7 20MHz 1RB 0 Offset QPSK Bottom CH21100 Hotspot Ant A/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 9.886 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.60 W/kg

SAR(1 g) = 0.916 W/kg; SAR(10 g) = 0.498 W/kg

Maximum value of SAR (measured) = 1.36 W/kg



Appendix A.83 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 41 Hotspot

Date: 2018-03-30

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE_Band_41_20MHz_1RB_0_Offset_QPSK_Bottom_CH40620_Hotspot.da53.0](#)

Ambient Temp : 23.1 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 41 (0); Frequency: 2593 MHz; Duty Cycle: 1:1.57979

Medium parameters used (interpolated): $f = 2593$ MHz; $\sigma = 2.212$ S/m; $\epsilon_r = 51.766$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(7.51, 7.51, 7.51); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 41_20MHz_1RB_0_Offset_QPSK_Bottom_CH40620_Hotspot/Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 1.24 W/kg

Body/LTE Band 41_20MHz_1RB_0_Offset_QPSK_Bottom_CH40620_Hotspot/Zoom Scan (7x11x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

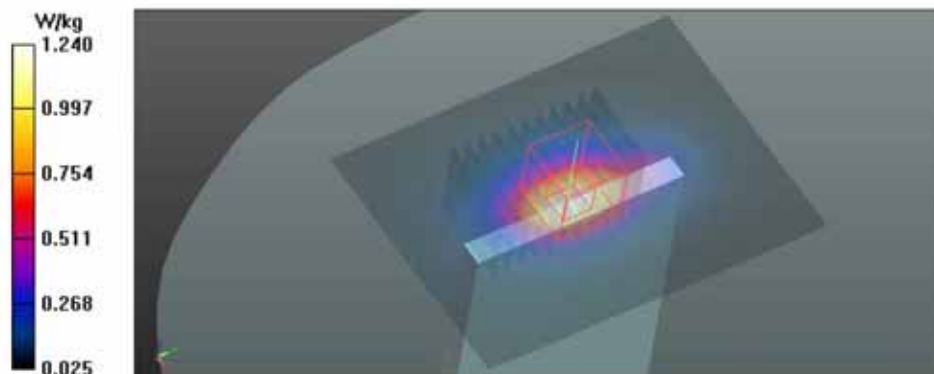
Reference Value = 7.772 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 1.43 W/kg

SAR(1 g) = 0.793 W/kg; SAR(10 g) = 0.414 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 1.21 W/kg



Appendix A.84 SAR Test Plots for Cell Phone+ LED View Cover 2.4 GHz WLAN Hotspot

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [2.45GHz_WLAN_802.11b_Top_CH11_Ant1_Hotspot.da53:0](#)

Ambient Temp : 22.8 °C Tissue Temp : 21.4 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, WLAN 2.45GHz (0); Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 2.006$ S/m; $\epsilon_r = 50.41$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(7.67, 7.67, 7.67); Calibrated: 2017-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 2017-05-23
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/2.45GHz_WLAN_802.11b_Top_CH11_Ant1_Hotspot/Area Scan (71x121x1): Interpolated grid:
 $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.384 W/kg

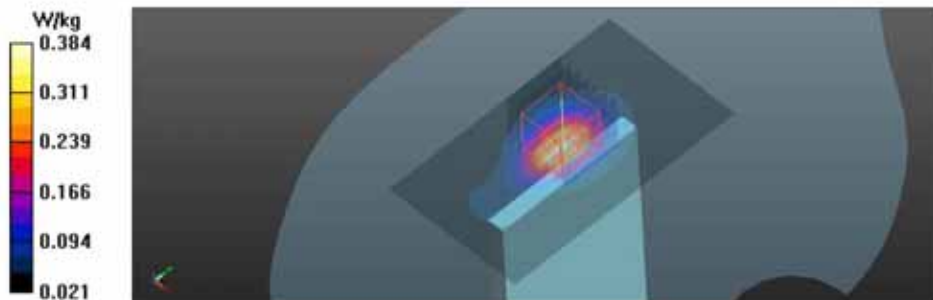
Body/2.45GHz_WLAN_802.11b_Top_CH11_Ant1_Hotspot/Zoom Scan (7x7x7)/Cube 0: Measurement
grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 4.182 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.429 W/kg

SAR(1 g) = 0.243 W/kg; SAR(10 g) = 0.132 W/kg

Maximum value of SAR (measured) = 0.364 W/kg



Appendix A.85 SAR Test Plots for Cell Phone+ LED View Cover U-NII-3 WLAN Hotspot

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: 5.8GHz WLAN 802.11ac VHT80 Rear CH155 Ant1 Hotspot.da53:0

Ambient Temp : 22.8 °C Tissue Temp : 21.5 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, 5GHz WLAN (0); Frequency: 5775 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5775 \text{ MHz}$; $\sigma = 5.963 \text{ S/m}$; $\epsilon_r = 47.24$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(4.09, 4.09, 4.09); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/5.8GHz WLAN 802.11ac VHT80 Rear CH155 Ant1 Hotspot/Area Scan (121x101x1):

Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.395 W/kg

Body/5.8GHz WLAN 802.11ac VHT80 Rear CH155 Ant1 Hotspot/Zoom Scan (9x9x7)/Cube 0:

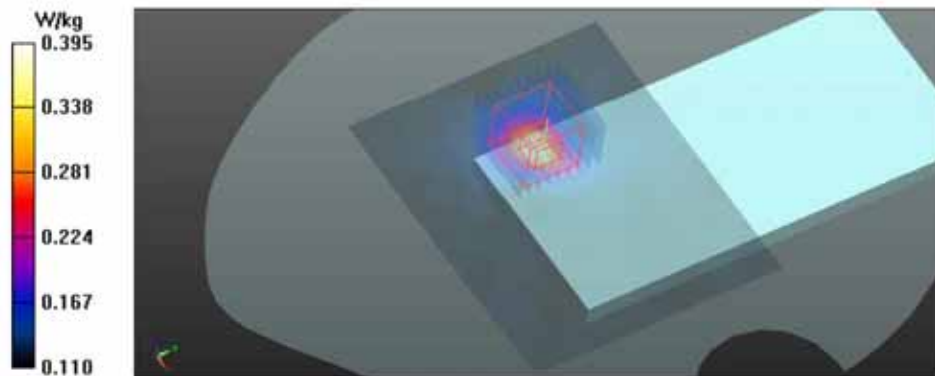
Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 5.331 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.629 W/kg

SAR(1 g) = 0.255 W/kg; SAR(10 g) = 0.180 W/kg

Maximum value of SAR (measured) = 0.398 W/kg



Appendix A.86 SAR Test Plots for Cell Phone+ LED View Cover U-NII-3 MIMO Hotspot

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: 5.8GHz WLAN 802.11ac VHT80 Rear CH155 MIMO Hotspot.da53.0

Ambient Temp : 22.8 °C Tissue Temp : 21.5 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, 5GHz WLAN (0); Frequency: 5775 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5775 \text{ MHz}$; $\sigma = 5.963 \text{ S/m}$; $\epsilon_r = 47.24$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(4.09, 4.09, 4.09); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/5.8GHz WLAN 802.11ac VHT80 Rear CH155 MIMO Hotspot/Area Scan (121x101x1):

Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.311 W/kg

Body/5.8GHz WLAN 802.11ac VHT80 Rear CH155 MIMO Hotspot/Zoom Scan (9x9x7)/Cube 0:

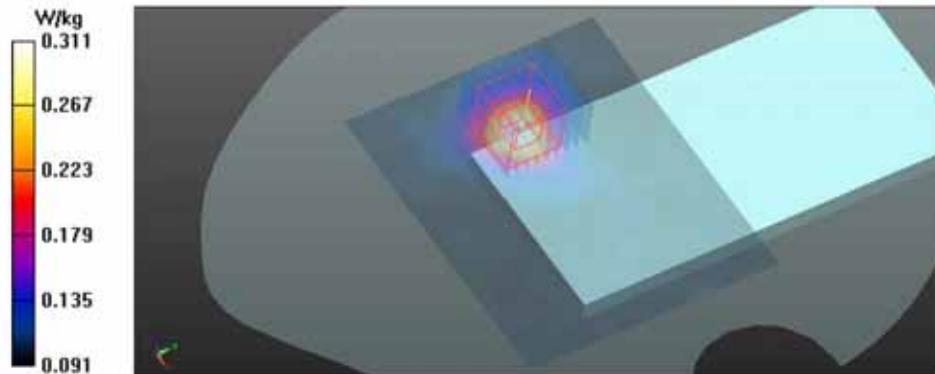
Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 4.817 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.432 W/kg

SAR(1 g) = 0.204 W/kg; SAR(10 g) = 0.155 W/kg

Maximum value of SAR (measured) = 0.304 W/kg



Appendix A.87 SAR Test Plots for Cell Phone+ LED View Cover Bluetooth Hotspot

Date: 2018-03-30

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [Bluetooth_GFSK_DH5_Front_CH39_Hotspot.da53.0](#)

Ambient Temp : 23.1 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, Bluetooth 3.0 (0); Frequency: 2441 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2441$ MHz; $\sigma = 1.927$ S/m; $\epsilon_r = 50.854$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(7.67, 7.67, 7.67); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/Bluetooth_GFSK_DH5_Front_CH39_Hotspot/Area Scan (121x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.0962 W/kg

Body/Bluetooth_GFSK_DH5_Front_CH39_Hotspot/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

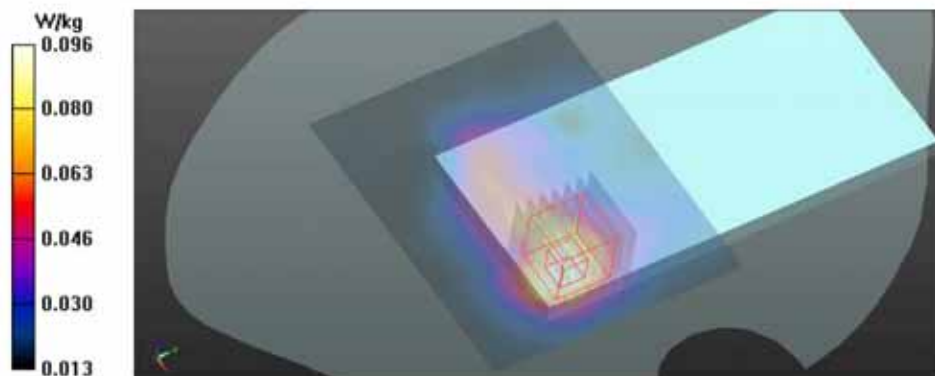
Reference Value = 3.999 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.114 W/kg

SAR(1 g) = 0.067 W/kg; SAR(10 g) = 0.042 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.0948 W/kg



Appendix A.88 SAR Test Plots for Cell Phone+ LED View Cover GSM 1900 Phablet

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [GPRS1900_Bottom_CH661_3TX_Phablet.da53.0](#)

Ambient Temp : 23.7 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

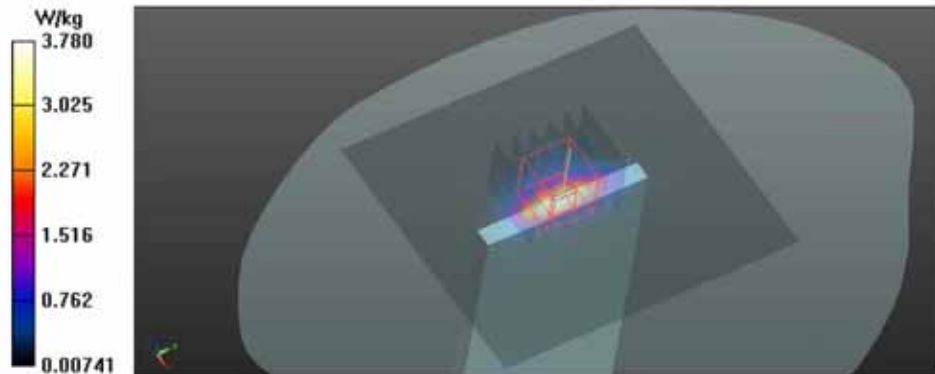
Communication System: UID 0, GPRS1900 3TX (0); Frequency: 1880 MHz; Duty Cycle: 1:2.77013
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.49 \text{ S/m}$; $\epsilon_r = 54.995$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.1, 8.1, 8.1); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/GPRS1900_Bottom_CH661_3TX_Phablet/Area Scan (81x91x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 3.78 W/kg

Body/GPRS1900_Bottom_CH661_3TX_Phablet/Zoom Scan (5x6x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 6.371 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 4.18 W/kg
SAR(1 g) = 2.28 W/kg; SAR(10 g) = 1.09 W/kg
Maximum value of SAR (measured) = 3.59 W/kg



Appendix A.89 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1750 Phablet

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [UMTS1750_Bottom_CH1513_Phablet.da53.0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

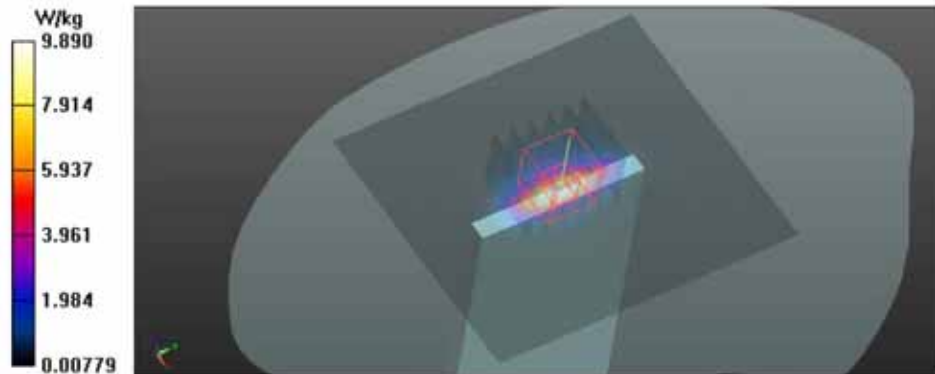
Communication System: UID 0, WCDMA 4 (0); Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1753$ MHz; $\sigma = 1.514$ S/m; $\epsilon_r = 51.192$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.37, 8.37, 8.37); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/UMTS1750_Bottom_CH1513_Phablet/Area Scan (81x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 9.89 W/kg

Body/UMTS1750_Bottom_CH1513_Phablet/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.649 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 8.05 W/kg
SAR(1 g) = 4.51 W/kg; SAR(10 g) = 2.24 W/kg
Maximum value of SAR (measured) = 6.96 W/kg



Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [UMTS1750_Rear_CH1412_Phablet.da53:0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, WCDMA 4 (0); Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 1732.4 \text{ MHz}$; $\sigma = 1.491 \text{ S/m}$; $\epsilon_r = 51.27$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.37, 8.37, 8.37); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/UMTS1750_Rear_CH1412_Phablet/Area Scan (71x111x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 3.37 W/kg

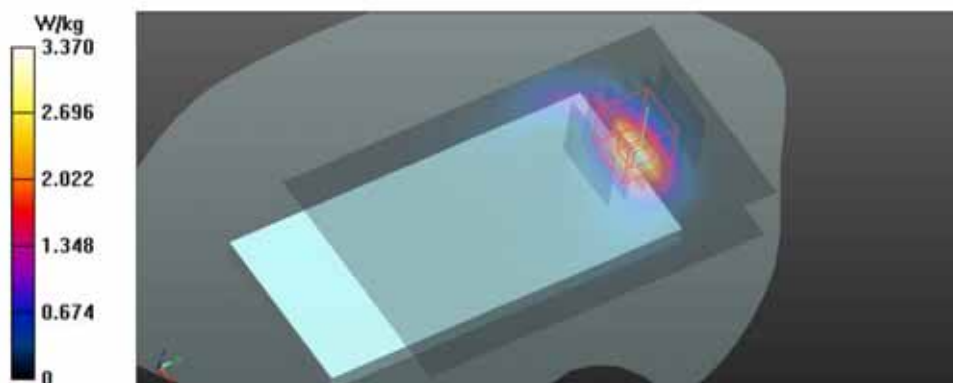
Body/UMTS1750_Rear_CH1412_Phablet/Zoom Scan (5x6x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.072 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 3.61 W/kg

SAR(1 g) = 2.18 W/kg; SAR(10 g) = 1.22 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 3.19 W/kg



Appendix A.90 SAR Test Plots for Cell Phone+ LED View Cover UMTS 1900 Phablet

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [UMTS1900_Bottom_CH9262_Phablet.da53.0](#)

Ambient Temp : 23.7 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, WCDMA2 (0); Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.46$ S/m; $\epsilon_r = 55.101$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.1, 8.1, 8.1); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/UMTS1900_Bottom_CH9262_Phablet 2/Area Scan (81x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 5.61 W/kg

Body/UMTS1900_Bottom_CH9262_Phablet 2/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

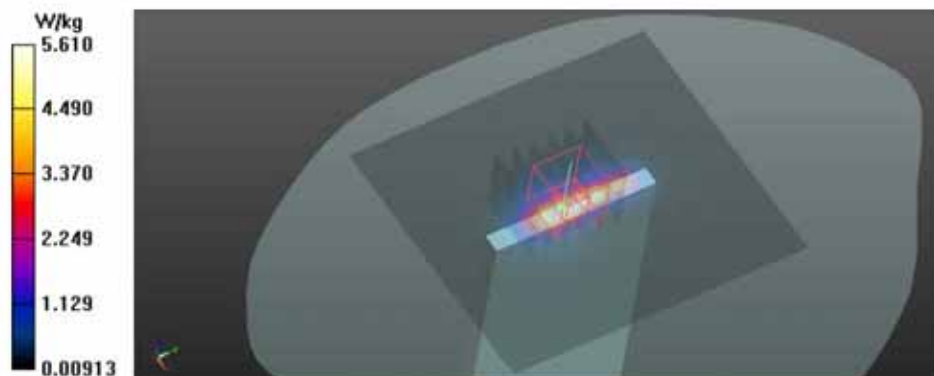
Reference Value = 3.737 V/m; Power Drift = 0.51 dB

Peak SAR (extrapolated) = 6.63 W/kg

SAR(1 g) = 3.47 W/kg; SAR(10 g) = 1.66 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 5.62 W/kg



Appendix A.91 SAR Test Plots for Cell Phone+ LED View Cover PCS CDMA Phablet

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: [PCS CDMA_Bottom_CH25_Phablet.da53:0](#)

Ambient Temp : 23.7 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, PCS CDMA (0); Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 1851.25$ MHz; $\sigma = 1.459$ S/m; $\epsilon_r = 55.108$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY52 Configuration:

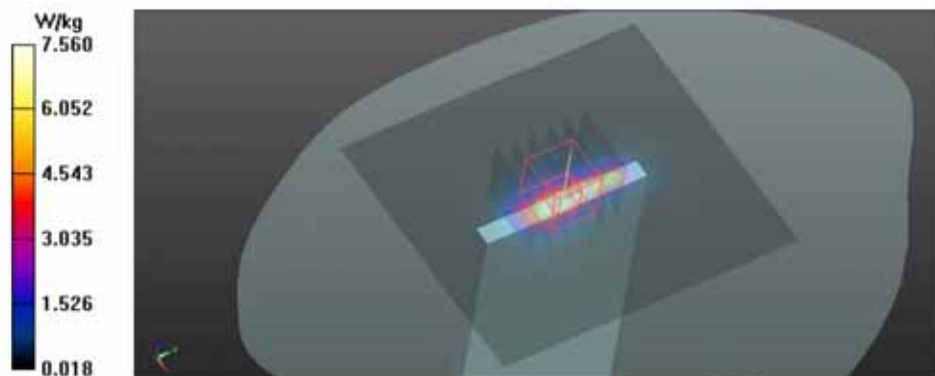
- Probe: EX3DV4 - SN3862; ConvF(8.1, 8.1, 8.1); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/PCS CDMA_Bottom_CH25_Phablet/Area Scan (81x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 7.56 W/kg

Body/PCS CDMA_Bottom_CH25_Phablet/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.479 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 7.57 W/kg
SAR(1 g) = 4.12 W/kg; SAR(10 g) = 2 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 6.61 W/kg



Appendix A.92 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 66 Phablet

Date: 2018-03-29

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 66_20MHz_50RB_25 Offset_QPSK_Bottom_CH132572_Phablet.da53.0](#)

Ambient Temp : 22.9 °C Tissue Temp : 21.7°C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 66 (0); Frequency: 1770 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1770$ MHz; $\sigma = 1.534$ S/m; $\epsilon_r = 51.139$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.37, 8.37, 8.37); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 66_20MHz_50RB_25 Offset_QPSK_Bottom_CH132572_Phablet/Area Scan

(61x81x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 10.0 W/kg

Body/LTE Band 66_20MHz_50RB_25 Offset_QPSK_Bottom_CH132572_Phablet/Zoom Scan

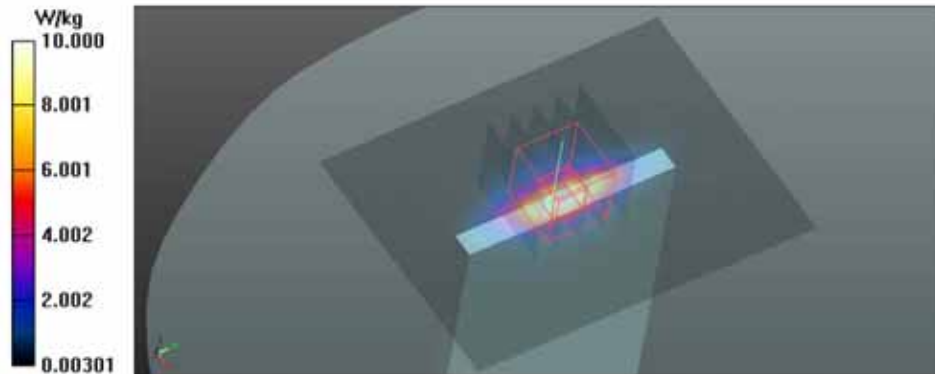
(5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 4.020 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 11.2 W/kg

SAR(1 g) = 5.79 W/kg; SAR(10 g) = 2.7 W/kg

Maximum value of SAR (measured) = 9.39 W/kg



Appendix A.93 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 25 Phablet

Date: 2018-04-01

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE_Band_25_20MHz_1RB_0_Offset_QPSK_Bottom_CH26365_Phablet.da53:0](#)

Ambient Temp : 23.7 °C Tissue Temp : 21.9 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 25 (0); Frequency: 1882.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1882.5$ MHz; $\sigma = 1.493$ S/m; $\epsilon_r = 54.987$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(8.1, 8.1, 8.1); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 25_20MHz_1RB_0_Offset_QPSK_Bottom_CH26365_Phablet/Area Scan (81x91x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 6.94 W/kg

Body/LTE Band 25_20MHz_1RB_0_Offset_QPSK_Bottom_CH26365_Phablet/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

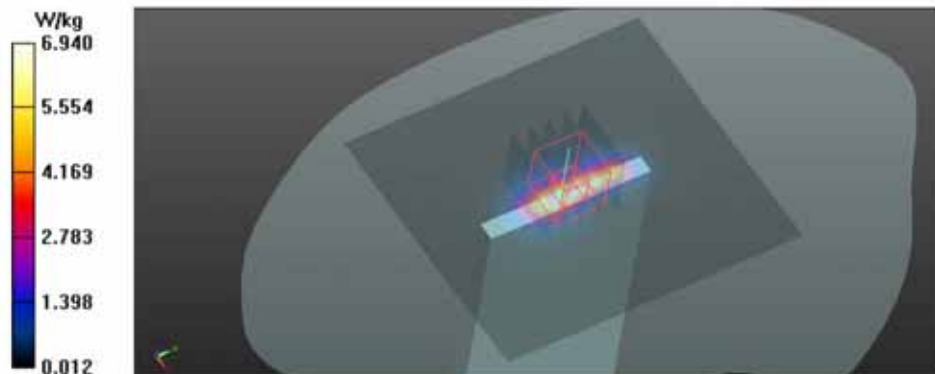
Reference Value = 4.422 V/m; Power Drift = 0.20 dB

Peak SAR (extrapolated) = 8.26 W/kg

SAR(1 g) = 4.38 W/kg; SAR(10 g) = 2.1 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 7.06 W/kg



Appendix A.94 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 30 Phablet

Date: 2018-03-30

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 30_10MHz_25RB_0 Offset_QPSK_Bottom_CH27710_Phablet.da53:0](#)

Ambient Temp : 23.1 °C Tissue Temp : 21.7 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 30 (0); Frequency: 2310 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2310$ MHz; $\sigma = 1.811$ S/m; $\epsilon_r = 51.899$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3933; ConvF(8.26, 8.26, 8.26); Calibrated: 9/28/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 30_10MHz_25RB_0 Offset_QPSK_Bottom_CH27710_Phablet/Area Scan

(91x121x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 5.21 W/kg

Body/LTE Band 30_10MHz_25RB_0 Offset_QPSK_Bottom_CH27710_Phablet/Zoom Scan

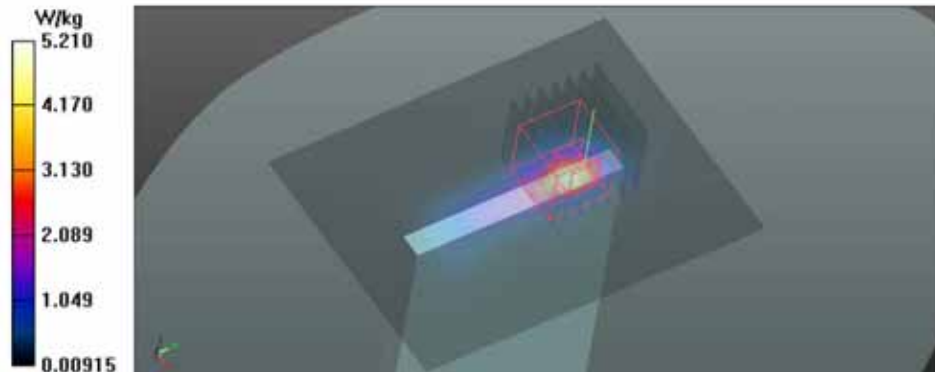
(7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 7.259 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 8.15 W/kg

SAR(1 g) = 2.6 W/kg; SAR(10 g) = 0.983 W/kg

Maximum value of SAR (measured) = 5.93 W/kg



Appendix A.95 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 7 Phablet

Date: 2018-03-30

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE Band 7_20MHz_50RB_0 Offset_QPSK_Front_CH21350_Phablet.dn53-0](#)

Ambient Temp : 23.1 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 7 (0); Frequency: 2560 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2560$ MHz; $\sigma = 2.172$ S/m; $\epsilon_r = 51.857$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3933; ConvF(7.79, 7.79, 7.79); Calibrated: 9/28/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 7_20MHz_50RB_0 Offset_QPSK_Front_CH21350_Phablet/Area Scan

(121x121x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 3.42 W/kg

Body/LTE Band 7_20MHz_50RB_0 Offset_QPSK_Front_CH21350_Phablet/Zoom Scan

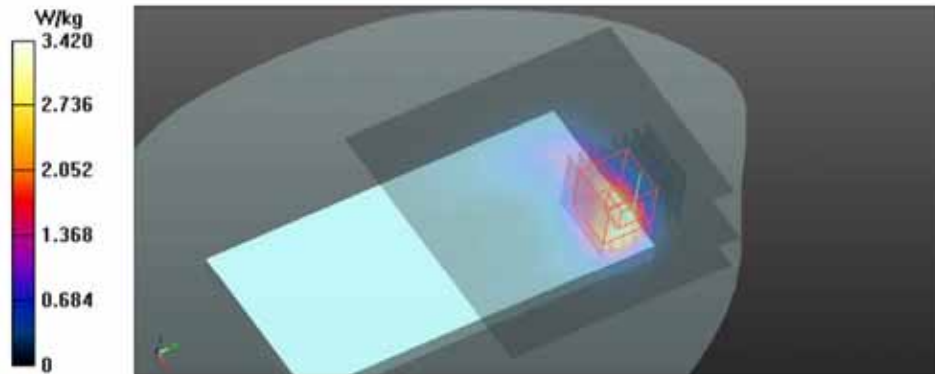
(7x8x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 2.903 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 4.26 W/kg

SAR(1 g) = 1.82 W/kg; SAR(10 g) = 0.920 W/kg

Maximum value of SAR (measured) = 3.27 W/kg



Appendix A.96 SAR Test Plots for Cell Phone+ LED View Cover LTE Band 41 Phablet

Date: 2018-03-30

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [LTE_Band_41_20MHz_1RB_0_Offset_QPSK_Bottom_CH40185_Phablet.da53:0](#)

Ambient Temp : 23.1 °C Tissue Temp : 21.8 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, LTE Band 41 (0); Frequency: 2549.5 MHz; Duty Cycle: 1:1.57979

Medium parameters used (interpolated): $f = 2549.5$ MHz; $\sigma = 2.157$ S/m; $\epsilon_r = 51.877$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(7.51, 7.51, 7.51); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1910 (20deg probe tilt); Type: QD000P40CD; Serial: TP1910
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/LTE Band 41_20MHz_1RB_0_Offset_QPSK_Bottom_CH40185_Phablet/Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 10.9 W/kg

Body/LTE Band 41_20MHz_1RB_0_Offset_QPSK_Bottom_CH40185_Phablet/Zoom Scan (7x11x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

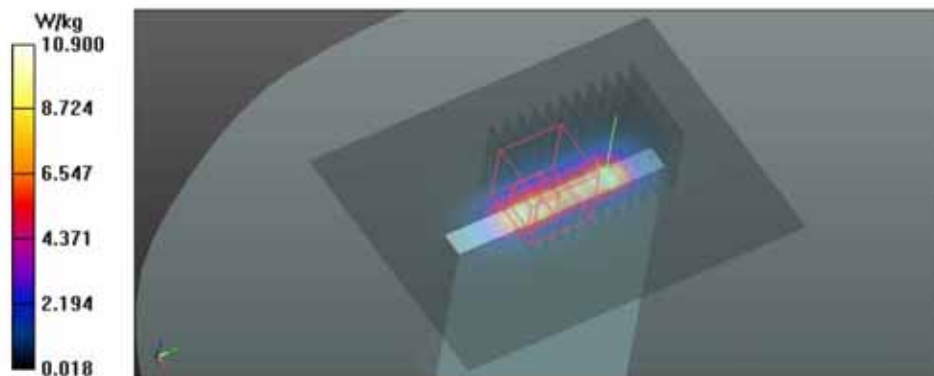
Reference Value = 7.955 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 13.2 W/kg

SAR(1 g) = 5.28 W/kg; SAR(10 g) = 2.3 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 10.0 W/kg



Appendix A.97 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2A Phablet

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [5.3GHz WLAN 802.11n HT40 Rear CH54 MIMO Phablet.da53-0](#)

Ambient Temp : 22.8 °C Tissue Temp : 21.6 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, 5GHz WLAN (0); Frequency: 5270 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5270$ MHz; $\sigma = 5.233$ S/m; $\epsilon_r = 46.893$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(4.37, 4.37, 4.37); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/5.3GHz WLAN 802.11n HT40 Rear CH54 MIMO Phablet/Area Scan (121x101x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 14.0 W/kg

Body/5.3GHz WLAN 802.11n HT40 Rear CH54 MIMO Phablet/Zoom Scan (9x9x7)/Cube 0:

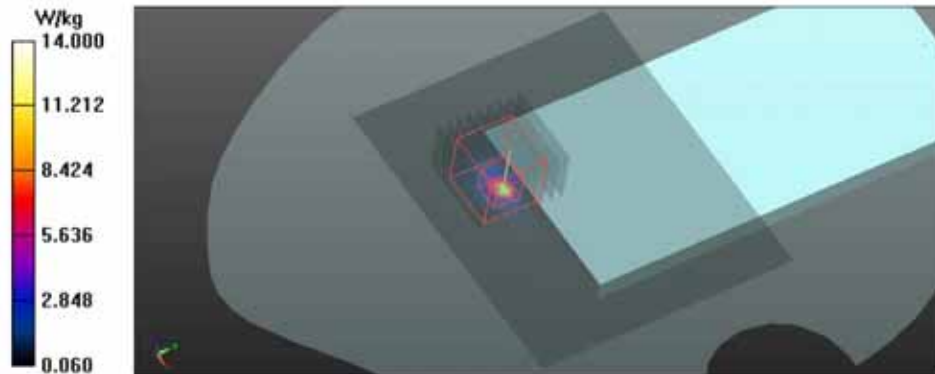
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 4.504 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 28.2 W/kg

SAR(1 g) = 4.21 W/kg; SAR(10 g) = 0.804 W/kg

Maximum value of SAR (measured) = 15.6 W/kg



Appendix A.98 SAR Test Plots for Cell Phone+ LED View Cover U-NII-2C Phablet

Date: 2018-04-02

Test Laboratory : SGS Korea (Gunpo Laboratory)

File Name: [5.6GHz WLAN_802.11ac_VHT80_Rear_CH122_Ant1_Phablet.da53.0](#)

Ambient Temp : 22.8 °C Tissue Temp : 21.6 °C

DUT: SM-G965U & EF-NG965U; Type: Portable Handset & LED View Cover; Serial: 43424d454d4c3098 & R37JA6QVMQXHB3

Communication System: UID 0, 5GHz WLAN (0); Frequency: 5610 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 5610$ MHz; $\sigma = 5.89$ S/m; $\epsilon_r = 46.466$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY52 Configuration:

- Probe: EX3DV4 - SN3862; ConvF(3.9, 3.9, 3.9); Calibrated: 9/25/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1340; Calibrated: 5/23/2017
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.0(1446)SEMCAD X 14.6.10(7417)

Body/5.6GHz WLAN_802.11ac_VHT80_Rear_CH122_Ant1_Phablet/Area Scan (121x101x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 11.8 W/kg

Body/5.6GHz WLAN_802.11ac_VHT80_Rear_CH122_Ant1_Phablet/Zoom Scan (9x9x7)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 5.183 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 65.2 W/kg

SAR(1 g) = 6.54 W/kg; SAR(10 g) = 1.14 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 20.7 W/kg

